Volume 3, Issue 25, Nov/Dec 2023, 812- 903

RECRUS
Research Newsletter

Highlights

[click to view]

Editor's Notes

Dear Readers,

Welcome to the latest Issue 25 of the RECRUS Research Newsletter! This edition shares some Breaking News happened in UPM, the opening of MOHE FRGS Grant for 2024, and insights into Nobel Laureates 2023 with related provocative and informative articles on Does Science need heroes?, Academic Research in the 21st Century: Maintaining Scientific Integrity in a Climate of Perverse Incentives and Hypercompetition, An Editorial on the Evidence on Questionable Research Practices: The Good, the Bad, and the Ugly, and why and how not to Fooling Ourselves in research

The newsletter also delves into topics ranging from the best practices of Recognition & Rewards, effectiveness-implementation hybrid trial designs, Open Science Practice in Clinical and Biomedical Research, An Update on AI Regulation, challenges in Evidence-Based Research, a new format of Résumé for Researchers to a special report on research offices. Don't miss the poetic touch with a poem by ChatGPT and valuable educational papers on some common research designs in BMJ and other journals. Discover research findings in HSAAS in reports from the Research Colloquium Series, and gain insights into AI regulation. Stay informed on upcoming events and funding opportunities, ensuring you unlock your research potential.

Happy Reading!

Editor-in-Chief

Unit Penyelidikan Klinikal
Hospital Sultan Abdul Aziz Shah Universiti Putra Malaysia
Persiaran Mardi - UPM
43400 Serdang
Selangor Darul Ehsan MALAYSIA
03-9769 9763 /9762 /9761 /9759
cru_hsaas@upm.edu.my
Click to visit our Facebook and Youtube page

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WHAT'S INSIDE

Breaking News

Research Achievements and Impacts

Clinical Epidemiology

Current Evidence

Announcement

REGISTER NOW!

- MJH Series 23: 22nd December 2023. An Evidence-based Demand Management Strategy using a Hub and Spoke Training Model Reduces Waiting Time for Children's Therapy Services: An Implementation Trial 10.30 – 11.45 am.
- Research Colloquium series 5/23. 6th December 2023.
- Expression of Interest Trans-disciplinary Project 2024
- 8th World Conference on Research Integrity (Hybrid), 2-5 June 2024, Athens, Greece.
- Introduction to Decentralized Clinical Trials (DCTs). An online course by the Association of Clinical Research Professionals (ACRP).
- Wellcome Trust Funding Opportunities.
- Opportunities for collaborative research in Horizon Europe: Energy, Climate Action & Mobility


SECTION A
BREAKING NEWS
LIVE

UPM
UNIVERSITI PUTRA MALAYSIA
BERILMU BERBAKTI

BREAKING NEWS

Congratulations!

PROFESSOR DR. ZAMBERI SEKAWI

on your appointment as

Deputy Vice Chancellor (Research & Innovation),
Universiti Putra Malaysia

Effective from 23rd October 2023

BREAKING NEWS

FUNDAMENTAL RESEARCH GRANT SCHEME (FRGS) 2024

Sukacita dimaklumkan bahawa Kementerian Pendidikan Tinggi (KPT) telah membuka permohonan Dana Penyelidikan Kementerian Pendidikan Tinggi (DP KPT) bagi tahun 2024 kepada kakitangan akademik di Universiti Awam dan Universiti Swasta (termasuk Kolej Universiti Swasta) mulai 30 Oktober 2023.

Pembukaan permohonan ini dilaksanakan secara atas talian menggunakan sistem MyGRANTS (Malaysia Greater Research Network System) yang boleh diakses seperti di pautan https://mygrants.gov.my.

GERAN	TARIKH TUTUP UPM	SEMAKAN RMC	PENILAIAN PERINGKAT UPM	PINDAAN PEMOHON	PENILAIAN SEMULA DAN PINDAAN (JIKA ADA)	PERAKUAN RMC	TARIKH TUTUP PERINGKAT KPT
FUNDAMENTAL (FRGS) TAHUN 2024 (MULAI 30-OKT-2023)	1 DISEMBER 2023 (JUMAAT) *melalui MyGRANTS sebelum jam 8.00 p.m.*	2 – 7 DEC 2023	8 – 21 DEC 2023	22 – 31 DEC 2023	1 – 14 JAN 2024	15 – 29 JAN 2024	30 JAN 2024

Application Guidelines [HERE]

Checklist Semakan Permohonan FRGS 1/ 2024 [HERE]

FUNDAMENTAL RESEARCH GRANT SCHEME (FRGS) 2024

- Untuk makluman, **semua siri-V mesti disertakan dengan Sebutharga** kecuali V11000 dan V21000. **Pemohon dinasihatkan untuk dapatkan sebutharga lebih awal.** Sebutharga dalam talian seperti Shopee, Lazada etc adalah tidak dibenarkan.

- Merujuk kepada syarat am permohonan FRGS 2024, dimaklumkan ketua projek FRGS terdahulu hanya layak memohon FRGS 2024 , sekiranya telah lengkap **Laporan Akhir dalam MyGRANTS (100% selesai)** dan telah disahkan RMC **sebelum 30 Oktober 2023** dan bukannya 30 November 2023 seperti hebahan RMC sebelum ini. Berikut adalah petikan daripada surat pemakluman pembukaan permohonan FRGS 2024 dari KPT untuk rujukan:-

(b) Pusat Pengurusan Penyelidikan (RMC) perlu memastikan pemohon yang telah diluluskan projek penyelidikan di bawah mana-mana Skim Geran DP KPT bagi **fasa terdahulu** telah **mengisi dan melengkapkan Laporan Prestasi dalam Laporan Pemantauan Bilangan 2 Tahun 2023 dan Laporan Akhir dalam Modul Pemantauan MyGRANTS. Laporan-laporan tersebut hendaklah telah disahkan oleh RMC sebelum tarikh pembukaan** geran FRGS Tahun 2024; dan

BREAKING NEWS

FUNDAMENTAL RESEARCH GRANT SCHEME (FRGS) 2024

Application Guidelines [HERE]

Full-time academicians (Permanent or contract) from IPTA or IPTS

Online Application: MyGRANTS

FUNDAMENTAL RESEARCH GRANT SCHEME (FRGS)

30th October – 1st December 2023 (UPM)

Fundamental research

New idea, theory, concept, method, model or process

Research Output:
Postgrads students:
1 Ph.D or 2 Master
Publication: ≥ 2 articles

FRGS

RM 250,000.00

Duration:
2 or 3 years

Patent search and Industrial collaboration

Applicants are strongly encouraged to:

- **Collaborate with industry/ agency.**
- **Submit evidence of a patent search.**

TIPS FOR SECURING RESEARCH FUNDING

16th February 2023

By: **Prof. TS. Dr. Goh Yong Meng,**
Deputy Director,
Research Grant Division,
Research Management Centre (RMC), UPM

Communicate your proposal effectively using the NABC Approach

N — NEEDS
- Why the project should be done?
- What is the immediate solution to the problem?

A — APPROACH
- How should it be done?
- Why is your approach compelling?

B — BENEFITS
- What are the benefits to the funder, target audience, and all stakeholders?
- Are the benefits long-term or immediately?

C — COMPETITION
- Who are the competitors?
- Demonstrate how and why your proposal is compelling.
- Have you mitigated all risks to the project?

NOBEL PRIZES 2023

The Nobel Prize in Physics 2023

PIERRE AGOSTINI

"for experimental methods that generate attosecond pulses of light for the study of electron dynamics in matter"

Ill. Niklas Elmehed © Nobel Prize Outreach

FERENC KRAUSZ

"for experimental methods that generate attosecond pulses of light for the study of electron dynamics in matter"

Ill. Niklas Elmehed © Nobel Prize Outreach

ANNE L'HUILLIER

"for experimental methods that generate attosecond pulses of light for the study of electron dynamics in matter"

Ill. Niklas Elmehed © Nobel Prize Outreach

The Nobel Prize in Chemistry 2023

MOUNGI G. BAWENDI

"for the discovery and synthesis of quantum dots"

Ill. Niklas Elmehed © Nobel Prize Outreach

LOUIS E. BRUS

"for the discovery and synthesis of quantum dots"

Ill. Niklas Elmehed © Nobel Prize Outreach

ALEKSEY I. YEKIMOV

"for the discovery and synthesis of quantum dots"

Ill. Niklas Elmehed © Nobel Prize Outreach

The Nobel Prize in Physiology or Medicine 2023

KATALIN KARIKÓ

"for their discoveries concerning nucleoside base modifications that enabled the development of effective mRNA vaccines against COVID-19"

Ill. Niklas Elmehed © Nobel Prize Outreach

DREW WEISSMAN

"for their discoveries concerning nucleoside base modifications that enabled the development of effective mRNA vaccines against COVID-19"

Ill. Niklas Elmehed © Nobel Prize Outreach

The Nobel Prize in Literature 2023

JON FOSSE

"for his innovative plays and prose which give voice to the unsayable"

Ill. Niklas Elmehed © Nobel Prize Outreach

The Nobel Peace Prize 2023

NARGES MOHAMMADI

"for her fight against the oppression of women in Iran and her fight to promote human rights and freedom for all"

Ill. Niklas Elmehed © Nobel Prize Outreach

The Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel 2023

CLAUDIA GOLDIN

"for having advanced our understanding of women's labour market outcomes"

Ill. Niklas Elmehed © Nobel Prize Outreach

For further reading:

CLICK HERE

DOES SCIENCE NEED HEROES?

A commentary during the Rijksmuseum Boerhaave symposium "Does science need heroes?" on the 2023 Nobel Prize announcements

By: Sarah de Rijcke

Professor of Science,
Technology and Innovation Studies

Summarised by : Iman Hafizah

Research Officer
Clinical Research Unit, HSAAS

The article explores the question of whether science needs heroes or structural reform. It discusses how idolizing heroes in science can exacerbate bias, inequality, competition, and other issues. The author suggests that while the current scientific system requires significant structural reform to address its flaws including various forms of bias, structural inequality, lack of transparency and rigor, excessive competition, commercialization, and vanity publishing, it also needs individuals who can provide good leadership and set an example as "heroes" in a different sense.

It also describes the historical context of university rankings and the evolving role of scientists, highlighting how contemporary research policies and metrics have shaped the way excellence is measured. It points out the negative consequences of excessive competition, short-termism, and risk aversion in science. The article calls for a change in research priorities, more diversity and inclusivity, and a reevaluation of criteria for excellent research. It also emphasizes the need for responsible research assessment and fostering a culture that values collaboration and positive societal impact in academia. The author draws inspiration from Pippi Longstocking, encouraging a spirit of exploration and risk-taking in science in which she suggested that we should foster taking risks, trying something new, stepping out of our comfort zone, and being bold whilst not taking ourselves too seriously.

To read more...

Academic Research in the 21st Century: Maintaining Scientific Integrity in a Climate of Perverse Incentives and Hypercompetition

Summarised by: Iman Hafizah | Research Officer, CRU HSAAS

In this paper, the authors address the significant challenges faced by academic researchers in the contemporary scientific landscape. They emphasize the erosion of scientific integrity and ethics within academia, primarily driven by a set of perverse incentives and hypercompetition that have emerged in recent years.

The authors begin by highlighting the transformative changes that have occurred in academic research during the 21st century. These changes include the intense competition for research funding, the pressure to publish in high-impact journals, and the race to secure academic positions, all of which have created a culture where researchers may compromise their values and the quality of their work in pursuit of success.

The authors emphasize that that the current academic culture has led to increased unethical research practices, including data manipulation and misconduct. Thus, this not only threatens the credibility of scientific research but also has serious implications for public trust in science. The authors also assert that maintaining scientific integrity is utmost important, however, and the current incentives or rewarding system in academic culture may lead to a disregard for ethical research conduct.

To address these issues, the authors propose several solutions. They advocate for greater transparency in research practices, ensuring that data and methodologies are made accessible for scrutiny. Responsible mentoring is also highlighted as a crucial component of maintaining integrity, as it can guide young researchers towards ethical and rigorous research conduct.

In addition, it was also suggested that recognizing research impact beyond traditional metrics is essential. The focus should shift from record of publications in prestigious journals to assessing the real-world impact of research on society and public health. Call for a reevaluation of academic promotion and tenure criteria, aiming to prioritize the quality and ethical standards of research over the current hypercompetitive environment that values quantity over quality is urgently warranted.

In summary, this paper points out the critical need to address the declining of scientific integrity in the contemporary academic landscape. The paper also provides valuable insights into the challenges faced by researchers and offers solutions that center around transparency, responsible mentoring, and a shift in academic priorities. By implementing these changes, the authors suggest that academia can regain its focus on ethical and high-quality research, ultimately fostering a more trustworthy and credible scientific community.

Edwards, M. A., & Roy, S. (2017). Academic Research in the 21st Century: Maintaining Scientific Integrity in a Climate of Perverse Incentives and Hypercompetition. Environmental Engineering Science, 34(1).

Editorial: Evidence on Questionable Research Practices

The Good, the Bad and the Ugly

J Bus Psychol 31, 323–338 (2016)

This article addresses the issue of questionable research practices in academic research. The authors examine various aspects of these practices, categorizing them as "The Good," "The Bad," and "The Ugly."

Summarised by:
Iman Hafizah
Research Officer, CRU

THE GOOD

In the "The Good" section, the authors discuss the positive aspects of certain research practices that, when employed wisely, can enhance the depth and scope of research. For instance, exploratory research allows researchers to generate hypotheses and explore novel areas, contributing to the advancement of knowledge. Similarly, conducting multiple analyses can provide valuable insights by examining research questions from different perspectives. The authors stress that these practices can be valuable but should be used with transparency and rigor to ensure the credibility of research findings.

THE BAD

"The Bad" section of the article explores into questionable research practices (QRPs) that can compromise the integrity of scientific work. Examples include p-hacking, which involves selectively reporting results or analyzing data until a significant result is found. These practices may result in exaggerated false-positive rates and the publications of unreliable findings. Selective reporting of results, where only significant results are presented while non-significant findings are omitted, thus manipulating the actual findings. The authors emphasize the need for researchers to adhere to sound statistical practices, report all results honestly, and avoid data manipulation to ensure the reliability of their research.

THE UGLY

In "The Ugly" section, the authors address serious questionable research practices, which include data fabrication and falsification. These practices represent violates research ethics and have dire consequences for scientific integrity. While data falsification comprises modifying already-existing data to suit a desired conclusion, data fabrication is producing wholly fictitious data.. These unethical practices not only damage the reputation of individual researchers but also undermine public trust in scientific research. The authors also highlight the importance of maintaining high ethical standards and promoting responsible research conduct to prevent such misconduct.

Recommendations for Publication Practices and Academic Training

CHANGES TO HOW WE REVIEW AND REWARD

- Journals should be more explicit about what sorts of research practices are and are not acceptable, and hold authors accountable for following journal policy
- Journals should consider the implementation and evaluation of the effectiveness of Registered Reports or Hybrid Registered Reports
- Journals should be more accepting of null results
- Journals should seek to increase diversity of research that is published to include more exploratory, inductive research as well as research based on abduction
- Journals should be more welcoming of replication research

CHANGES TO HOW WE TRAIN STUDENTS

- Doctoral programs should emphasize cultures that promote open science and collaboration while discouraging engagement in questionable research practices (QRPs)
- Research ethics training in research methods classes should expand beyond a sole focus on the protection of human subjects to also include discussions regarding QRPs

CONDUCT MORE RESEARCH

- There is still more we need to understand about QRPs. To date there has been a focus primarily on practices that affect p-values. More work is needed that examines other types of QRPs, such as in structural equation modeling, specification of priors in Bayesian statistics, or misreporting data in qualitative research

FOOLING OURSELVES

An article by: Regina Nuzzo.

Humans are remarkably good at self-deception. But growing concern about reproducibility is driving many researchers to seek ways to fight their own worst instincts

Summarised by:
Iman Hafizah
Research Officer, CRU

The author explores the issue of self-deception and biases in scientific research including cognitive and psychological biases that can lead researchers to misinterpret data, make incorrect conclusions, and inadvertently compromise the integrity of scientific findings.

COMMON BIASES IN RESEARCH

The article identifies common biases that scientists may fall prey to, such as confirmation bias, where researchers unconsciously seek or interpret data that confirms their preconceived beliefs. Another bias discussed is the file-drawer problem, where studies with negative or inconclusive results tend not to be published, skewing the overall scientific literature.

> "SCIENCE IS AN ONGOING RACE BETWEEN OUR INVENTING WAYS TO FOOL OURSELVES, AND OUR INVENTING WAYS TO AVOID FOOLING OURSELVES."

THE PROBLEMS

A common pitfall in scientific research, where researchers focus solely on collecting evidence to support a preferred hypothesis, neglecting to seek evidence against it or consider alternative explanations. “People tend to ask questions that give ‘yes’ answers if their favoured hypothesis is true” says Jonathan Baron, a psychologist at the University of Pennsylvania in Philadelphia

Another cognitive trap in data analysis is known as the "Texas sharpshooter" fallacy, where individuals selectively focus on patterns in data that appear significant but are actually the result of random chance. Researchers are prone to this trap, engaging in practices like "p-hacking," manipulating data until achieving statistical significance.

A potential pitfall during the data-checking phase of scientific research is disconfirmation bias or asymmetric attention to detail. This bias involves researchers being more lenient in scrutinizing expected results while rigorously examining results that contradict their expectations.

Besides, tendency of researchers to engage in "just-so storytelling" during the compilation and interpretation of data analysis results. This fallacy involves creating post-hoc stories to justify findings, potentially explaining anything and everything without genuine understanding. The article also mentions the temptation to rationalize non-significant results, referred to as JARKing (justifying after results are known).

“I’M NOT TRYING TO PRODUCE MISLEADING RESULTS — BUT I DO HAVE A STAKE IN THE OUTCOME.”

THE SOLUTIONS

Nuzzo suggests several strategies to mitigate these biases and improve the rigor of scientific research. She advocates for increased transparency and the adoption of preregistration, a practice in which researchers outline their study methods and hypotheses before data collection, reducing the potential for post hoc data manipulation. The use of larger sample sizes and replication studies is also encouraged to enhance the reliability of research findings. The author also emphasizes the importance of statistical rigor to produce valid conclusions from data analysis.

Furthermore, the article underscores the importance of statistical rigor, emphasizing the need to account for multiple comparisons and consider effect sizes in data analysis. Nuzzo also highlights the value of collaboration and peer review in promoting more objective and reliable science.

Engaging with academia 'rivals' is also one of the approaches to mitigate biases in sciences. Daniel Kahneman, a psychologist at Princeton University, notes that this approach allows for constructive arguments and intelligent conversations, helping to identify flaws like hypothesis myopia or storytelling biases.

Psychologist Eric-Jan Wagenmakers from the University of Amsterdam shares his experience in such collaborations. He collaborated with a group to replicate research on horizontal eye movements aiding memory retrieval. Despite the non-replication of results, the collaboration generated new ideas and brought the opposing parties closer, avoiding a stalemate. Wagenmakers suggests ways to encourage such collaborations, including prizes for the best rival collaboration or special journal sections dedicated to such endeavors.

In conclusion, Nuzzo's article sheds light on the cognitive biases that scientists may unknowingly bring into their research, potentially leading to self-deception. By advocating for increased transparency, preregistration, larger sample sizes, replication studies, and improved statistical rigor, the article provides practical recommendations to enhance the quality and credibility of scientific research. It emphasizes the critical role of scientific integrity in maintaining the trustworthiness of the scientific community and its contributions to knowledge.

TO READ FURTHER

CLICK HERE

BREAKING NEWS

INISIATIF LONJAKAN PENYELIDIKAN PUTRA

INISIATIF LONJAKAN PENYELIDIKAN PUTRA

1.0 TUJUAN

a) Inisiatif Lonjakan Penyelidikan Putra ini adalah bertujuan untuk membantu penyelidik untuk **menambah baik artikel jurnal dan menepati komen penilai artikel** bagi membolehkan artikel jurnal diterbitkan dalam jurnal berimpak tinggi JCR JIF Q1-Q2.

b) Skop pembiayaan inisiatif ini adalah untuk meningkatkan kualiti artikel sepertimana berikut;

- Pembelian bahan penyelidikan seperti, bahan pakai habis dan bahan kimia
- Menjalankan survey, analisis & ujian.
- Pembelian data dan perisian
- Bayaran gaji khidmat enemurator
- Perkhidmatan suntingan seperti yang dicadangkan oleh penilai artikel.

c) Pembelian **aset adalah tidak dibenarkan**.

d) Borang permohonan perlu dihantar bersama-sama dokumen sokongan berikut;

- Laporan penilai artikel jurnal
- Justifikasi lengkap yang menunjukkan gambaran jelas tahap keperluan item yang dipohon.
- Sebutharga (*quotation*) item yang dipohon.

e) Penyelidik yang diluluskan Inisiatif Lonjakan Penyelidikan Putra perlu memastikan semua artikel yang disandarkan untuk mendapatkan pembiayaan inisiatif ini WAJIB diterbitkan dalam jurnal JCR JIF Q1-Q2.

f) Inisiatif Lonjakan Penyelidikan Putra ini **tidak dikategorikan sebagai geran penyelidikan** dan terimaan inisiatif ini tidak boleh diisytiharkan sebagai terimaan geran penyelidikan melalui PRIMS.

2.0 KELAYAKAN DAN SYARAT PERMOHONAN

a) Inisiatif ini terbuka kepada pegawai UPM sepenuh masa sama ada kakitangan tetap atau pun kontrak (**Pensyarah/Pensyarah Kanan/Profesor Madya/Felo Penyelidik dan Pegawai Penyelidik sahaja**).
*Bagi permohonan Pegawai Penyelidik, mestilah mempunyai penulis bersama dari kalangan Pegawai Akademik.

PUSAT PENGURUSAN PENYELIDIKAN (RMC) 2023

BREAKING NEWS

INISIATIF LONJAKAN PENYELIDIKAN PUTRA

b) Pemohon adalah Penulis Penghubung (*corresponding author*) bagi artikel berkenaan.

c) Pemohon mestilah telah menghantar artikel kepada jurnal JCR JIF Q1/Q2 dan telah mendapat maklumbalas daripada penilai jurnal.

d) Pemohon layak diluluskan **sekali sahaja dalam tahun semasa,** tertakluk kepada baki peruntukan semasa.

e) Siling pembiayaan adalah **tidak lebih RM 10,000.**

f) Cara pembayaran inisiatif adalah secara tuntutan bayaran oleh pemohon atau melalui pesanan belian / arahan bayaran melalui pihak Bendahari UPM.

3.0 TATACARA PERMOHONAN

a) Borang permohonan Inisiatif Lonjakan Penyelidikan Putra ini boleh dimuat turun melaui laman web RMC https://rmc.upm.edu.my/.

b) Permohonan yang telah lengkap perlu dihantar ke Bahagian Geran Penyelidikan RMC. Sebarang pertanyaan berhubung inisiatif ini boleh diajukan kepada yushaida@upm.edu.my .

4.0 PROSES PEMBAYARAN / TUNTUTAN

PERMOHONAN PERBELANJAAN (PENYELIDIK)
- Penyelidik mengisi e-RO / e-claim dan hantar salinan bercetak untuk kelulusan RMC kepada **Puan Aishah Md Yasin,** Unit Pentadbiran RMC [03-9769 1637 aishahmy@upm.edu.my]

KELULUSAN PERBELANJAAN (RMC)
- Kelulusan permohonan e-RO / e-claim oleh RMC
- RMC hantar permohonan ke Seksyen Kewangan Penyelidikan untuk pembayaran.

PROSES PESANAN (PO) / PEMBAYARAN / TUNTUTAN
- Penyelidik perlu mematuhi tatacara pesanan belian / tuntutan.

Application Form of Inisiatif Lonjakan Penyelidikan Putra

[HERE]

PUSAT PENGURUSAN PENYELIDIKAN (RMC) 2023

A response to pushing publication in journals on JCR JIF Q1-Q2

By: Assoc. Prof. Dr. Boon-How Chew

Workshipping' impact factors and pushing for publication in journals on JCR JIF Q1-Q2 without more due attention to the quality of the research from its beginning and throughout the whole process are against the academic values we are upholding, 'outdated' in the world (see below) and should be abhorred if done without other appropriate assessment/rewarding methods and systems. The following are sharings from Nobel Laureates, opinions around the world on the Declaration on Research Assessment (DORA), journal articles and reports on revising research assessments and researchers' evaluation.

"The research counts, not the journal!"
Nobel Laureates speak out against impact factors but focusing on progressive discoveries in science

https://twitter.com/NobelPrize/status/1118537208531693568

"I had a miserable impact factor and a catastrophic register of prizes!" said 2017 Nobel Laureate Jacques Dubochet when he came to collect his Nobel medal, proving that you don't have to be top of the class to make a big impact on the world.

https://twitter.com/NobelPrize/status/1093178769223925760

Randy Schekman explains how impact factors were designed as a tool to help libraries select which journals to subscribe to, not as a way to judge individual researchers.

https://www.nobelprize.org/impact-factors/

"Every department at Utrecht University in the Netherlands will judge its scholars by other standards, including their commitment to teamwork and their efforts to promote open science"

https://www.nature.com/articles/d41586-021-01759-5?s=03

EDITORIAL DORA – or learning to value ourselves. "Metrics do not just stop with our personal lives; they are pervasive in our professional social lives as well"

https://boneandjoint.org.uk/Article/10.1302/2048-0105.92.360768?s=03

The University of Cambridge and Cambridge University Press announced on 8 July 2019 that they have signed up to the San Francisco Declaration on Research Assessment (DORA) that seek to ensure that the quality and impact of research outputs are 'measured accurately and evaluated wisely'.	https://www.cam.ac.uk/research/news/cambridge-university-signs-san-francisco-declaration-on-research-assessment?utm_campaign=research&utm_medium=social&utm_source=twitter&utm_content=1562573877&s=03
The fundamental activity of the European Research Council is to provide attractive, long-term funding to support Principal Investigators and their research teams to pursue ground-breaking, high-gain/high-risk research.	https://sfdora.org/resource/european-research-council-erc/
Beyond 'impact factor': OICR signs DORA declaration for more equitable research assessment	https://oicr.on.ca/beyond-impact-factor-oicr-signs-dora-declaration-for-more-equitable-research-assessment/
Natural Sciences and Engineering Research Council of Canada	https://www.nserc-crsng.gc.ca/NSERC-CRSNG/policies-politiques/DORA-DORA_eng.asp?s=03
Universities 'must read applicants' work to defeat impact factor' Nobel laureates call for early career researchers to be freed from 'publish or perish' mentality	https://www.timeshighereducation.com/news/universities-must-read-applicants-work-defeat-impact-factor?s=03
Journal impact factor, trial effect size, and methodological quality appear scantly related: a systematic review and meta- analysis	https://doi.org/10.1186/s13643-020-01305-w
The Impact Factor Fallacy	https://doi.org/10.3389/fpsyg.2018.01487
"We argue that new approaches to assessment are required to provide a realistic and comprehensive measure of the value of research and journals and we support open access publishing at a modest, affordable price to benefit research producers and consumers"	https://doi.org/10.1080/08989621.2021.1909481
The Future of Research Evaluation: A Synthesis Of Current Debates and Developments	https://drive.google.com/file/d/1EJ5AmSoc4MY16fVcTiNu2VKTLLeieKOn/view

RESEARCH OFFICES OF THE FUTURE BY RESEARCH PROFESSIONAL NEWS

Research Professional News
Published by Clarivate™

Author: Chris Parr; Sub-editor: Donatella Montrone; Chief sub-editor: Craig Harris; Design and production: Grace Harrison, Orlen Crawford; Editor: Sarah Richardson

This report, published in November 2023 by Research Professional News, summarizes the results of two international surveys conducted on research offices and research services teams. The surveys, one targeting research office staff and the other aimed at researchers in universities and institutes, gathered over 800 responses each. The report provides a comprehensive overview of the challenges, opportunities, and future directions for research support teams globally, offering insights into the quality and effectiveness of research support systems. It serves as a valuable resource for stakeholders such as research services staff, researchers, university leaders, and funding agencies, with the goal of contributing to the ongoing discussion on improving the quality and effectiveness of research support services worldwide.

Key Findings

Research offices prioritize securing funding, showcasing research impact, and enhancing research quality. Key challenges involve fostering

Research offices experience change driven by cost pressures, demonstrating research impact, and research assessment exercises (RAEs), with variations across regions.

Many research offices recognize the potential of artificial intelligence to compile information for grant applications and analyzing unsuccessful grant bids.

Fig 1 Geographical breakdown of university research office respondents

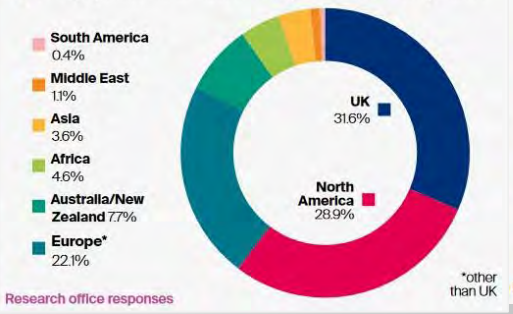


Fig 2 Geographical breakdown of university researcher respondents

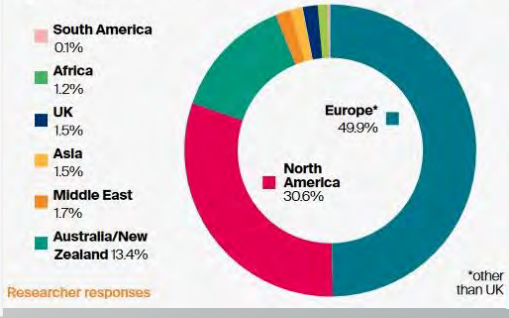
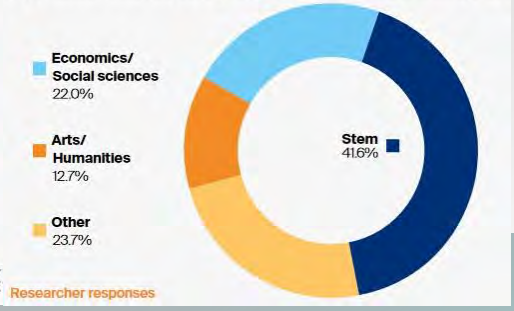


Fig 3 Researcher respondents by discipline in which they predominately work



1. Evolving priorities

Among research office respondents, the most important areas were obtaining more funding to increase the volume of research (73.9%), demonstrating research impact (45.9%) and improving research quality (43.6%)

2. Change drivers

Similarities were observed in the priority areas, with 56.4% citing cost pressures and 48.3% identifying demonstrating research impact as the two most referenced change drivers.

3. Assessment exercises

24.0% identified resourcing within their teams as the primary challenge. Other obstacles included gathering information from researchers (22.1%), understanding or anticipating changes in assessment criteria (19.5%), and demonstrating impact (18.5%).

"Research development is an underrated role. We bring a lot to the application but are not seen as a valuable support by many, until they experience first hand the impact we have. From horizon scanning to bringing teams together, writing elements of the bid to championing bids…we have a vital role in the success of research institutions."

-Research development leader, UK

Summarised by:

Iman Hafizah
Research Officer, CRU

RESEARCH OFFICES OF THE FUTURE BY RESEARCH PROFESSIONAL NEWS

4. AI in focus

Only 24.7% of research office respondents identified artificial intelligence (AI) as a major change driver for their institution's research operations in the next five years. Respondents highlighted potential advantages in compiling information for grant applications (57.0 percent) and analyzing unsuccessful grant bids to enhance future success (53.1 percent)

5. Research office challenges

When asked about the three biggest challenges facing their research office, the most cited concern among research office staff was pressure on budgets and resources (mentioned by 57.5% of respondents. Time pressures were the next most cited (48.1%), followed by staff recruitment and retention (37.7%), successfully bidding for funds (35.4%), and problems with inadequate systems and software (31.9%).

6. Winning funding

In exploring challenges faced by research offices, a survey asked respondents to identify their institution's top three issues when bidding for funds. The most common problem cited was ensuring effective engagement between researchers and the research office, mentioned by 52.3% of respondents. Other frequently mentioned barriers included limited resources for the research office (48.1%), understanding reasons for unsuccessful bids (45.1%), and availability of resources for internal peer review (35.8%). Notably, only 10.6% of respondents found the usability of funding databases to be a significant challenge

7. Threats to integrity

The research community faces challenges in maintaining the integrity of research outputs, with respondents identifying various threats. The primary concern, cited by 63.2%, is the pressure to publish. Other perceived threats include insecure employment practices (38.1%), cultural issues like bullying (36.6%), and the activities of predatory journals (34.2%). To address these concerns, research office staff are implementing precautionary measures, such as facilitating training (64.4%), developing research integrity policies (63.5%), and investigating related complaints (40.8%). However, 12.9% of respondents reported that their research office has not identified any specific steps to address concerns about research integrity.

8. Library collaboration

Libraries are recognized as significant partners in supporting research, following individual researchers, faculty deans, and the provost/vice-chancellor's office, according to 30.7% of respondents. The primary area of collaboration between research offices and libraries is open-access compliance, cited by 61.7% of respondents.

To read the full report

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'

Recognition & Rewards

The European University Association has published a very important briefing on the use of rankings. With these 'key considerations', EUA aims to raise further awareness and encourage reflection of some of the potential pitfalls of rankings and provide its members with guidance towards their responsible use.

Key considerations for the use of global rankings

There is no single definition of quality for university activities
(Highly diverse) universities are dependent on and function within highly diverse national funding and governance systems, thus further compounding the fact that rankings do not compare like with like
Rankings may be consulted in different ways, by a variety of stakeholders
It takes critical analysis to identify what kind of indicators are used in rankings, and what they are intended to measure
Specifically with regard to study choices, students should be encouraged to conduct their own research, consider their personal preferences and goals, and weigh up a range of factors before making a decision
Institutional decisions should not be driven by rankings
The use of rankings should be avoided in the context of research assessment
An institution's decision for or against participating in a ranking exercise should be clearly explained and communicated
Universities also have a duty to educate external stakeholders in the uses and misuses of rankings

Learn More!

Briefing document

READ THE E-MAGAZINE

New Recognition & Rewards e-magazine

The new Recognition & Rewards e-magazine is titled "Embrace the Impact." The magazine consisted of interviews, blogs, articles, and best practices related to the advancements in the joint Recognition & Rewards program across various institutions. From the contributions, it becomes apparent that Recognition & Rewards is progressively being implemented, encompassing detailed new career paths, diverse assessment criteria, reflective leadership, and more.

SECTION C: CLINICAL EPIDEMIOLOGY

Appraisal in Meta-journal Hour 20

By NA Ilham[1,2], A Sarimah[2], BH Chew[1] & NIH Adanan[1]
[1]CRU, HSAAS UPM; [2]Unit Biostatistic USM

The Paper: Estimating excess mortalities due to the COVID-19 pandemic in Malaysia between January 2020 and September 2021

Why was this study done?

COVID-19 was declared a pandemic by the World Health Organization in March 2020, with over 286 million confirmed cases and 5.43 million deaths worldwide. These figures are likely to underestimate the true burden of a pandemic. Malaysia, an upper-middle-income country, implemented public health measures like the Movement Control Order (MCO) to contain the spread of COVID-19.

The country experienced outbreaks driven by clusters in factories, prisons, and immigration detention centres. The emergence of more transmissible variants, particularly the Delta variant, led to a damaging wave in mid-2021. Malaysia recorded 2.75 million cases and 31,462 deaths by December 2021.

The tax-funded public health system in Malaysia played a major role in vaccinating, screening, and treating the population.

Historically, All-cause mortality has been used for the surveillance of infectious diseases such as influenza. The algorithm for detecting aberrant events can be used in detecting excess mortalities as well.

Excess mortalities can capture unreported COVID-19 deaths and collateral damage from overwhelmed health systems. Excess mortalities refer to the number of deaths that exceed the expected number of deaths in a given period. They are used as an indicator of the true burden of a disease, such as COVID-19. Excess mortalities are calculated by comparing the observed number of deaths to the expected number of deaths based on historical trends and other factors.

Watch the video recording on:

YouTube

Click [HERE] and don't forget to subscribe to our channel!

What is the objective of conducting this study?

This study aims to investigate the possibility of excess all-cause mortalities in Malaysia due to the COVID-19 pandemic and its age, location, and cause-specific distributions across Malaysia

Excess mortalities refer to the number of deaths that exceed the expected number of deaths in a given period. The difference between the observed and expected number of deaths is reported as excess mortalities.

How was it done?

In Malaysia all death in the country need to be reported within 7 days(Peninsular and Sarawak) and 10 days for Sabah.

The mortality data will be compiled into Nasional mortality database maintained by DOSM.

DOSM will liaise with MOH and Police department to counter-check on the completeness of death registration

How the data obtained?

- From DOSM for death occurring between epidemiological week one in January 2016 to epidemiological week 39 in September 2021, amounting to 69 months of data.
- Additional data were retrieved from the official MOH COVID-19 data repository between 1 January 2020- 30 Sept 2021

What is the data extracted?

- Age of death, Sex, Nationality, Ethnicity, Place of residence by state, Cause of death (COD)

Codes of COD

- Using ICD-10 for death that had been medically certified or
- Less formal codes for deaths that had been certified by police personnel
- ICD-10 codes were unavailable for 2019 and 2021 during data extraction
- Death from traffic road accident were identified using ICD-10 codes. Deaths due to RTA for the year 2019-2021 were identified through mining free text description of COD keywords such as motor, traffic, road, crash as well as the Malay equivalent term.
- COVID-19 mortality in Malaysia are adjudicated as either death due to COVID-19 or death with COVID-19 using pre-defined set of criteria by MOH.
- Only deaths due to COVID-1 are counted as COVID-19 mortalities

Statistical analysis

Missing Data Management	Random imputation was done for missing data with no day of death but with month and year. Account for 2% of data in 2017-2019 The data then being used to categorize mortality into epidemiologic week
Explore temporal structure of the data	LOESS(STL) was carried out on the time series LOESS(STL) is a seasonal-trend decomposition using LOESS..
Surveillance of potential aberrations within all-cause mortality count	Carried out using flexible Farrington algorithm The algorithm is formulated to predict an observed number of counts using a set of reference values from window of size w weeks up to b years back,
Fitted the reference value into statistical model	The reference value then fitted into overdispersion Poisson generalized model with one sided confident interval. A w of 3 and b of were utilized. Data were further divided into 10 periods and fit into the model. Data from 2016-2019 were utilized for model training
Stratification	Age group (i) under one, (ii) under five, (iii) 5–14, (iv) 15–40, (v) 41–59, and (vi) 60 years and above Sex male or female Cause of death road traffic accidents (RTA) or non-RTA Ethnicity (i) Malay, (ii) Other Indigenous, (iii) Chinese, (iv) Indian, and (v) Other ethnicities Nationality (i) Malaysian and (ii) Non-Malaysian.
Sensitivity analysis	Varying w(2-8) and b(2-5) Compared with Bayesian hierarchical approach modelling trends, temperature, spatiotemporal patterns and a greater geographical resolution developed by Konstantinoudis et al.
Reporting excess mortality	Excess mortalities were reported as the difference and percentage change between observed mortalities, the predicted point estimate and its 95% CI (upper limit) Excess mortalities attributable to COVID-19 mortalities were calculated by taking the proportion of COVID-19 mortalities from the excess mortalies.
Software and package	R version 3.6.0 using tidyverse and surveillance package

What was the finding?

a) Overall mortality

In Malaysia from January 2016 to September 2021, there were 1,000,562 all-cause mortalities, predominantly affecting those aged 60 and above (66.8%). COVID-19 cases and deaths followed four waves, with the lowest observed after the March-April 2020 movement control order. Predicted all-cause mortality had bimodal peaks in December 2020-February 2021 and May-July 2021. Mortality trends declined in 2020 but sharply increased in 2021, surpassing predictions by 13.0–24.0%.

In 2020, there was a reduction of 5.5–23.7% in observed mortalities compared to predictions. However, in 2021, there was an excess of 13.0–24.0%, with 86.2–100% of excess mortalities attributed to COVID-19. The peak of excess mortalities occurred between July and September 2021, with a 46.4–58.1% increase compared to predicted mortalities. Trends in COVID-19 cases and deaths aligned with observed all-cause mortality trends in 2021.

b) By state mortality

The states in Malaysia exhibited varied trends in predicted all-cause mortalities. Johor, Kedah, Perak, Perlis, Pulau Pinang, Sabah, and Sarawak showed a bimodal pattern, reflecting the national trend. Kelantan, Melaka, Negeri Sembilan, Pahang, and Terengganu reported unimodal predicted mortality trends. Selangor, Putrajaya, Kuala Lumpur, and Labuan displayed a static trend. All states recorded higher all-cause mortalities than the upper interval of predicted values between July and September 2021.

Notably, excess counts were most significant in Terengganu (2.2–19.5%), Pahang (10.2–22.4%), Perak (14.1–25.5%), Kelantan (17.6–28.8%), Melaka (23.4–37.4%), Negeri Sembilan (25.8–38.0%), Johor (28.0–36.6%), Pulau Pinang (29.3–39.4%), Kedah (35.5–43.3%), Selangor (47.6–53.6%), and Kuala Lumpur (53.3–61.3%) during July-September 2021. The proportion of excess mortalities attributed to COVID-19 in these states ranged from 51.6% to 100%.

c) Mortality by age group

Predicted mortalities for individuals aged 40 and above followed a bimodal pattern, while younger age groups did not show a specific trend. Beyond July 2021, observed all-cause mortalities exceeded predictions across all age groups above 14 (Fig. 3). The largest excess counts were in individuals aged ≥60 (27.8–33.7%), between 41 and 59 (41.7–45.9%), and between 15 and 40 (32.0–41.5%) during July-September 2021.

The proportion of excess mortalities attributed to COVID-19 in these age groups ranged from 74.8% to more than 100%, as indicated in Supplementary Appendix 3. In essence, the impact of COVID-19 was particularly pronounced in older age groups, with observed mortalities surpassing predictions and a significant proportion of excess mortalities linked to the virus.

d) Mortality by gender

Male and female predicted all-cause mortality patterns are in line with national bimodal trends. The highest months for observed all-cause mortality were reported to be July and September of 2021. It is reported that beyond July 2021, observed all-cause mortality will surpass projected mortalities. Males exhibited the highest excess numbers between July and September 2021, with an excess of 30.5–35.0% for men and 33.3–39.1% for women. The ratio of extra deaths in these age groups linked to COVID-19 varied from 82.5% to over 100%.

e) Mortality by non-RTA and RTA

The bimodal national all-cause death trends and the predicted non-RTA mortality trends lined up. It was found that predicted RTA trends weakened over time. The observed non-RTA mortalities peaked between July and September 2021, which is in line with national trends in all-cause mortality.

Over the course of the investigation, observed RTA fatalities were shown to be consistently lower than predicted by 36.6–80.5%. The drop from 86.7 to 135.7 per cent between April and June 2020 was the biggest difference between the observed and anticipated mortalities. The overall estimates and the stratification by nationality and ethnicity did not show any appreciable trends that differed significantly.

f) Sensitivity analysis

Like the Farrington approach, the Bayesian hierarchical estimates had higher excess thresholds and more uncertainties. According to both forecasts, there will be excess in 2021 and none in 2020. For July–September 2021, an excess of 33.6–38.1% (Farrington) and 22.1–31.9% (Bayesian Hierarchical) is estimated.

Discussions

Initial Period (Early 2020)

- There were minimal changes in overall mortality rates.
- This suggests that local transmission of COVID-19 was likely low during that period.
- Strict lockdown measures lead to a significant reduction in observed deaths.
- Other causes of mortality such as influenza, pneumonia and accidents also reduce in trend.

Reversal in 2021

- There were significant increase in all cause of mortality especially in Julu to September.
- This is particularly corresponded due to surge in COVID-19 case and widespread of Delta variant.

Impact in specific age group

- Mortality among individuals under 15 years of age showed a decreasing trend, possibly due to reduced non-covid-19 pneumonia mortality.
- Reduced human interaction, mask usage, hand hygiene, and physical distancing measures likely contributed to this decrease.
- Road and transport-related accident (rta) mortalities, a leading cause of death among those aged 15 to 40, significantly declined during movement restrictions.

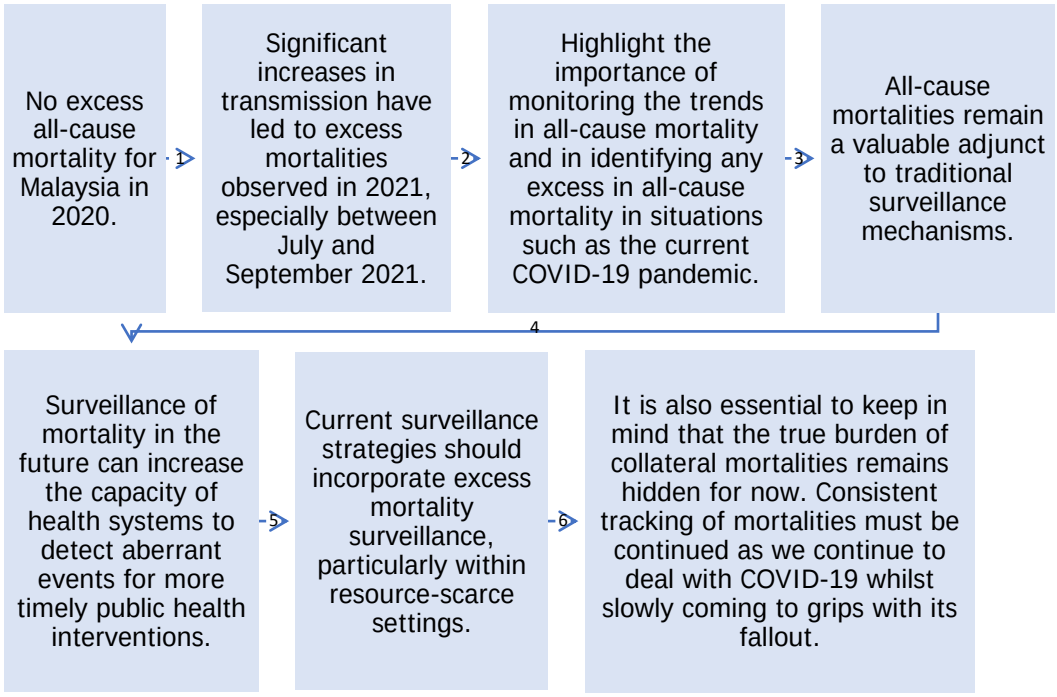
Scarcity of published data at Southeast Asia

- Despite the lengthy pandemic, there is a scarcity of published data on excess mortality in southeast Asia, highlighting the need for improved vital statistics surveillance in the region.
- The study emphasizes the importance of establishing a regional surveillance system to monitor future pandemics and public health threats

Methodology & Limitation

- The study used robust aberration detection mechanisms to analyse a large dataset over 21 months.
- Limitations included potential reporting delays and underreporting, particularly in East Malaysia.
- The analysis focused on all-cause mortality, making it challenging to attribute specific causes to excess deaths amid the COVID-19 pandemic

Conclusion



How much can we take out from this paper?

The study aimed to investigate levels of excess all-cause mortality and their geographic, age, and sex distributions in Malaysia between January 2020 and September 2021. The findings revealed an overall reduction in observed mortalities from predicted mortalities in 2020, indicating low local transmission in the early days of the pandemic. However, there was a significant increase in excess all-cause mortalities in 2021, particularly between July and September, corresponding to the spread of the Delta variant.

Movement restriction measures, such as the Movement Control Order (MCO), led to a substantial reduction in road and transport-related accident mortalities, especially in individuals aged between 15 and 40. Lockdowns have been shown to reduce accidental mortalities.

The study emphasizes the importance of monitoring all-cause mortality trends and incorporating excess mortality surveillance in current surveillance strategies. This can aid in timely public health interventions and enhance the capacity of health systems to detect and respond to public health emergencies.

A seasonal and trend decomposition using LOESS (STL) was employed to delineate the effect of noise prior to putting it into predictive modelling. This paper uses an over-dispersed Poisson generalized linear model to predict excess mortalities due to the COVID-19 pandemic in Malaysia. This model is more complex than the standard Poisson model but can provide more accurate estimates of the true underlying distribution of the data. The model incorporates regression parameters of time-trend and seasonal factors to estimate the expected number of mortalities with a one-sided confidence interval. It is particularly relevant in studies assessing the impact of COVID-19 as an external factor on mortality rates.

Sensitivity analysis was performed by varying the parameters w and b, and linear trends were tested over time for inclusion within the model. On top of that, the researchers use hierarchical Bayesian analysis which has the advantage of handling complex data.

Despite having discrepancies in some of the results when using both robust statistical analyses, bear in mind that Bayesian modelling incorporates prior information in their posterior to form inference. On top of that, they add more parameters to be estimated by Bayesian modelling such as population trends, temperature, spatiotemporal patterns and a greater geographical resolution compared when using an over-dispersed Poisson generalised linear model

In conclusion, this study provides valuable insights into the estimation of excess mortalities during the COVID-19 pandemic in Malaysia. It highlights the impact of the Delta variant, the effectiveness of movement restrictions in reducing accidental mortalities, and the need for improved surveillance systems to better respond to future pandemics and public health threats.

APPRAISALS IN META-JOURNAL HOUR 21

By **Nurfaizah** and **BH Chew**

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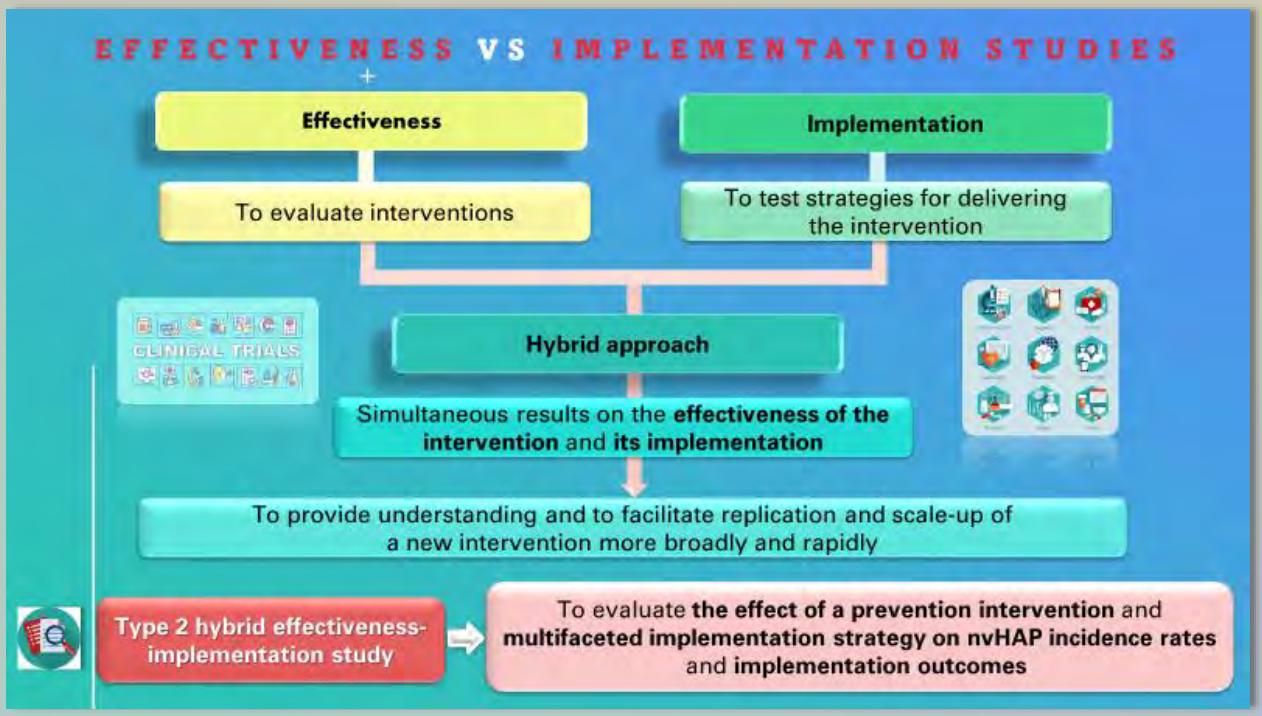
The paper:

PREVENTION OF NON-VENTILATOR-ASSOCIATED HOSPITAL-ACQUIRED PNEUMONIA IN SWITZERLAND: A TYPE 2 HYBRID EFFECTIVENESS–IMPLEMENTATION TRIAL

WHY WAS THIS STUDY CONDUCTED?

Hospital-acquired pneumonia (HAP) contributes the highest no. of disability-adjusted life-years among 6 major health-care-associated infections. About 60-70% of the cases are non-ventilator-associated hospital-acquired pneumonia (nvHAP). Available guidelines and scientific literature on nosocomial pneumonia prevention focus primarily on ventilator-associated pneumonia (VAP). There is a paucity of published evidence on the effectiveness of prevention bundles compared to single preventive measures. This study investigated the effectiveness of an intervention to introduce a five-measure nvHAP prevention bundle using a multifaceted implementation strategy in a broad surgical and medical patient population. The hybrid type 2 trial simultaneously evaluated implementation and effectiveness outcomes. The findings are not only on the effectiveness of the prevention intervention in lowering the nvHAP incidence rate but also reveal how the key determinants influenced the implementation of the nvHAP bundle.



HOW WAS IT DONE?

The study is a type 2 hybrid effectiveness–implementation trial with a quasi-experimental, non-randomized and stepped-wedge design. This single-centre study included all patients admitted to nine surgical and medical departments at the University Hospital Zurich, Switzerland with a nvHAP rate > 50th percentile among all departments in 2017. They were surveyed over three study periods: baseline (14–33 months, depending on department), implementation (2 months), and intervention (3–22 months, depending on department). The five-measure nvHAP prevention bundle consisted of oral care, dysphagia screening and management, mobilisation, discontinuation of non-indicated proton-pump inhibitors, and respiratory therapy. The implementation strategy comprised department-level implementation teams who conducted and locally adapted the core strategies of education, training, and changing infrastructure. Intervention effectiveness on the primary outcome measure of nvHAP incidence rate was quantified using a generalised estimating equation method in a Poisson regression model, with hospital departments as clusters. Implementation success scores and determinants were derived longitudinally through semistructured interviews with health-care workers.

INTERVENTION AND IMPLEMENTATION STRATEGIES

The nvHAP bundle consists of 5 Prevention Measures:

(based on existing literature and anticipated feasibility and ease of implementation)

- Patients required **mechanical oral care** (eg, tooth brushing) **at least once per day.**
- Patients with **dysphagia required mechanical oral care three times per day.**
- **Pharmacological oral care with chlorhexidine (mostly twice per day)** was required for **patients with relevant pathologies of the mouth.**
- **Referral to dental treatment** was required if indicated and prescribed by the physician.

Oral care

Dysphagia screening & management

A **Modified Swallowing Assessment' (MSA)** adapted from the 'Standardized Swallowing Assessment' was used to screen for dysphagia at the bedside. If MSA screening indicated risk of aspiration, the patient was referred to a facial-oral tract therapist or a speech therapist for further evaluation and treatment.

Intervention Bundle Elements

Mobilisation

- **Every patient without contraindication** required **mobilisation at the bedside** or **out of the bed at least twice per day.**
- **Early postoperative mobilisation was mandatory after surgery.**
- Mobilisation could either be executed by the patient or assisted by nurses or physiotherapists.

Referral to respiratory therapists was advised for a defined patient population, with a final decision at the discretion of the responsible physician.

- ✓ Patients with chronic pulmonary disease
- ✓ Patients who required more than 3 L of oxygen to reach an oxygen saturation of more than 93%.
- ✓ Patients recovering from abdominal or thoracic surgery or injury.
- ✓ Patients who were not out of bed for more than 4 h/day.
- ✓ Patients having problems with coughing and at risk for accumulating bronchial secretions.

Respiratory therapy

Discontinuation of non-indicated proton-pump inhibitors

Proton-pump inhibitors were restricted to an in-house indication list.

IMPLEMENTATION STRATEGIES

Multifaceted Implementation Strategy

(based on existing frameworks and designed to allow for local adaptation and ownership)

Department Implementation Teams:

- **Nurse**
- **Physician**
- **Physiotherapist**

Institutional Implementation Team:

Sustaining the **core implementation strategies** of **education, skill training, infrastructure adaptation** (modifying the physical structure, equipment, record systems and policies to support the delivery of the intervention) and **adapting strategies to local needs.**

Supporting department implementation teams:

To establish and continuously adapt their action plans and implementation goals **and provide educational and training materials**

Applied formative approach with interim qualitative and quantitative results constantly used to enhance local implementation.

TYPE 2 HYBRID EFFECTIVENESS-IMPLEMENTATION STUDY MODEL AND MEASURES

Figure 2:
Type 2 hybrid effectiveness-implementation study model and measures

IMPLEMENTATION:
Longitudinal Qualitative Analysis

EFFECTIVENESS:
Quasi-experimental
(Before-and-after study)

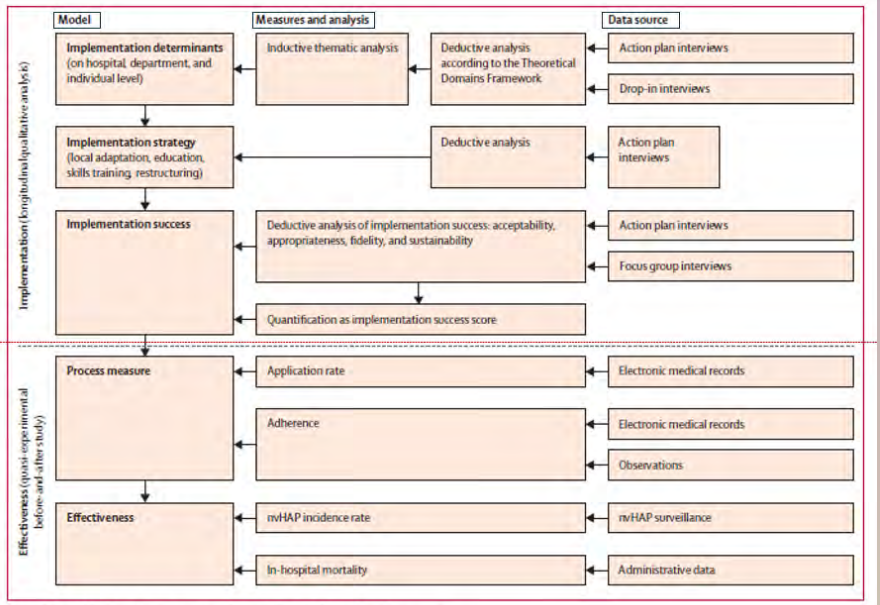


Figure 1: Type 2 hybrid effectiveness-implementation study model and measures

DATA COLLECTION AND OUTCOMES

5 OUTCOME MEASURES:

1. **nvHAP incidence rate**
2. **All-cause in-hospital mortality**
3. **Process measures**
4. **Implementation determinants**
5. **Implementation success**

- ECDPC: European Centre for Disease Prevention and Control
- EMR: Electronic Medical Record

1 PRIMARY OUTCOME

nvHAP incidence rate per 1000 patient-days

- Aggregated by **department** and **month**.
- Cases recorded **retrospectively** by a validated semi-automated surveillance system (ECDPC)
- **Pneumonia definition**:
  1. **Radiological criteria**
  2. **Systemic signs** (fever, leukopenia or leukocytosis)
  3. **Pulmonary symptoms** (cough, sputum production)
  4. **Microbiological criteria** (optional)

2 SECONDARY OUTCOME

All-cause in-hospital mortality

- Assessed on the basis of **administrative data.**
- The **covariate Case Mix Index (CMI)** is defined as mean case severity within a specific department and month

$$\frac{\text{The sum of the cost weights}}{\text{The number of cases}}$$

3 PROCESS MEASURES

2 ways assessment:

- **Application rate per 1000 patient-days** (EMR data aggregated by department and month)
- **Adherence proportion** (manual data extraction and patient interrogation in a convenience sample of **50 patients per department** at **baseline** and **3 times during the intervention.**

5 OUTCOME MEASURES:

1. **nvHAP incidence rate**
2. **All-cause in-hospital mortality**
3. **Process measures**
4. **Implementation determinants**
5. **Implementation success**

4 & 5 IMPLEMENTATION SUCCESS

- Described **qualitatively** in terms of **4 implementation outcomes**:
  1. **Acceptability** (How satisfied study participants are with the intervention).
  2. **Appropriateness** (The perceived fit of the intervention and to what extent participants succeeded in adapting the intervention to meet the needs of their local context).
  3. **Fidelity** (How closely participants succeed in implementing the core bundle components as described in the study protocol.
  4. **Sustainability** (To what extent the intervention became institutionalised and anchored within ongoing operations).
- **Quantified** (as an **exploratory outcome**) as **implementation success scores**.
- **Implementation determinants** established from **qualitative data**.

Data on **implementation success** and **implementation determinants outcome measures** were collected longitudinally through:

Action plan interviews with department implementation teams:

- **1x** during **baseline** period
- **3x** during the **intervention** period

Focus groups with interprofessional front-line staff

At the **end of the intervention period**

Drop-in interviews with front-line staff:

- **1x** during **baseline** period
- **3x** during the **intervention** period

Qualitative data collection was guided by the concept of high information power

Information power indicates that the more information the sample holds, relevant for the actual study, the lower amount of participants is needed.

WHAT WAS THE FINDING?

PRIMARY OUTCOME

Jan 1, 2017 - Feb 29, 2020

	No. of nvHAP cases: 451 cases across 361947 patient-days			
		No. of nvHAP cases	Patient-days (thousands)	Incidence rate (per 1000 patient-days)
Period	Baseline	338	238. 33	1.42 cases [95% CI 1.27-1.58]
	Implementation	19	19.12	0.99 cases [95% CI 0.63-1.56]
	Intervention	94	104.50	0.90 cases [95% CI 0.73-1.10]

SECONDARY OUTCOME

All-cause in-hospital mortality

No. of all-cause in-hospital mortality: 1558

- Baseline: 1024 — Baseline: 4·30 (95% CI 4·04-4·57)
- Implementation: 83 — Implementation: 4.34 (95% CI 3.50-5.38)
- Intervention: 451 — Intervention: 4.32 (95% CI 3.94-4.73)

Average mortality rate per 1000 patient-days

The adjusted Rate Ratio (RR) for in-hospital mortality: **0·92** (95% CI 0·81–1·04; p=0·18)

Results in sensitivity analyses:
- **RR 0·88** (95% CI 0·72–1·06; p=0·17) when **excluding the year 2017**
- **RR 0·90** (0·82–0·99; p=0·038) when **including CMI** as an additional **explanatory variable**
- **RR 0·91** (0·68–1·21; p=0·50) with the **study month** as an additional **explanatory variable**

PROCESS MEASURES

A. Application rates of nvHAP bundle prevention measures per 1000 patient-days

Bedside dysphagia screening increased (RR 3·44 [95% CI 2·10–5·64], p<0·0001) and **prescription of proton-pump inhibitors decreased (0·90 [0·86–0·93], p<0·0001)** in the **intervention period** compared with the **baseline period**.

- **Changes in oral care** (1·09 [0·97–1·23], p=0·14)
- **Mobilisation** (0·96 [0·90–1·03], p=0·26)
- **Physiotherapy** (0·99 [0·94–1·04], p=0·72)

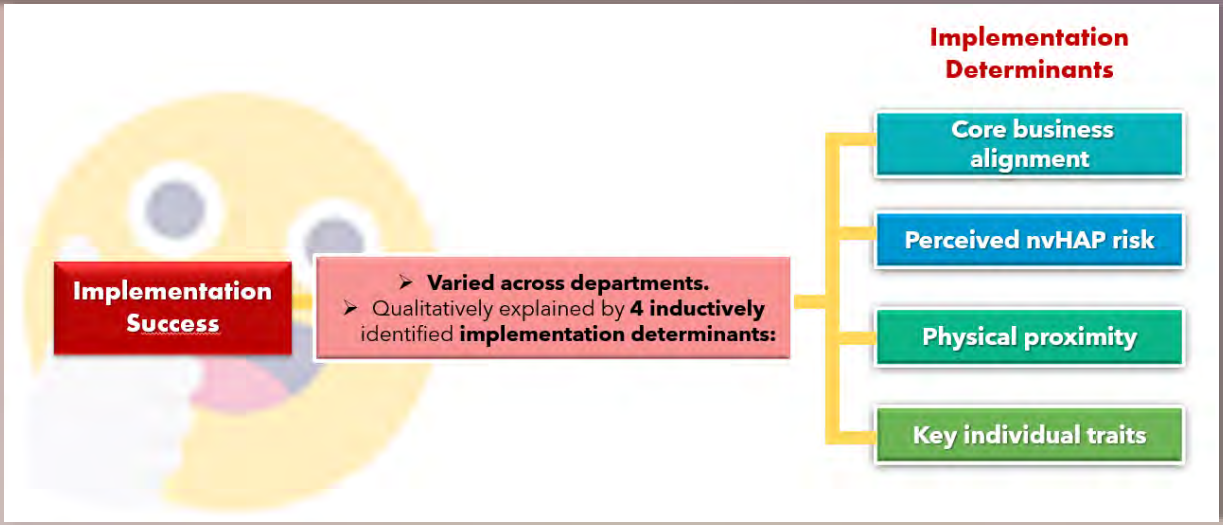
Non-significant

B. Adherence to nvHAP bundle prevention measures

COMPARISON WITH BASELINE

- At the **visit after 8-10 months of intervention**, **improvements** were observed in the **proportion of patients with adherence to**:
  - ✓ **Dysphagia screening and management: Odds ratio 1·72 [95% CI 0·97–3·04] p=0·064.**
  - ✓ **Discontinuation of non-indicated proton-pump inhibitors: Odds ratio 2·01 [95% CI 1·30–3·10], p=0·002**
- **Oral care** (0·60 [0·26–1·38], p=0·23), **mobilisation** (0·76 [0·20–2·87], p=0·68), and **respiratory therapy** (0·55 [0·22–1·41], p=0·22) **did not change significantly** in this period.

IMPLEMENTATION SUCCESS AND DETERMINANTS



Implementation Outcomes

Acceptability

Findings		Factors
High across **departments** and **study periods** among **physiotherapists**		nvHAP measures as being aligned with their core business.
Among all professional groups	**Low acceptability**	▪ Perceived suboptimal timing of the project. ▪ The introduction of nvHAP measures alongside too many other activities as part of the hospital-wide infection-prevention initiative.
	High acceptability	▪ Perception that nvHAP measures led to observable improvements and high-quality patient care. ▪ Attractive implementation materials and meaningful events. ▪ Perception that the project required little additional effort.

- **Acceptability outcomes** were affected by the key individual traits (ie, the characteristics of people in participating departments, including, but not limited to, local delegates).
- Important facilitators: **Positive attitudes and charisma, intrinsic motivation**, and **the authority and latitude to make decisions.**
- In **most departments**, acceptability among nurses (and to a lesser extent among physicians) increased throughout the project.

Appropriateness

Findings	Factors
▪ **Varied** among **nurses** and **physicians across departments.** ▪ **High among physiotherapists**.	**The perception of appropriateness largely driven by:** ▪ **Perceived nvHAP risk** (ie, the extent to which participants perceived their patients to be at risk of developing or having a high burden of nvHAP) ▪ **Core business alignment** (ie, how well the intervention aligned with existing departmental and professional activities and was perceived as being an integral part of their medical specialty).

- In departments where **appropriateness was initially perceived to be low**, audits and feedback of nvHAP rates and process indicators by the nvHAP project team were often successful in improving motivation and changing valency among local nvHAP teams.

Implementation Outcomes

Fidelity

Findings		Factors
Indicated by appropriateness and acceptability. High among physiotherapists.		
Among all professional groups	**High fidelity**	Key individuals and positive attitudes in combination with organisational leverage to execute changes.
	Low fidelity	▪ If the departmental implementation team(s) felt little responsibility for the project or if turnover affected local delegates themselves, which occurred rarely. ▪ In general, **fidelity was lowest among physicians**, mainly due to perceived lack of time resources or low prioritisation. **Perceived lack of time** was also pronounced among **nurses for the mobilization measure.**

Sustainability

- The extent of integration of nvHAP measures into routines, making them likely to extend beyond the project duration.
- Assessed in the implementation and intervention periods.

Findings	Factors
Higher sustainability among **professional groups** and **departments with higher acceptability and appropriateness.**	
Sustainability	▪ **Substantial** among **nurses** of some (mostly medical) departments whose **core business aligned with the nvHAP bundle measures**. ▪ **High** among **physiotherapists**, who were **already professionally attuned to the importance of nvHAP prevention measures**.

Most physicians did not integrate processes supporting the intervention into their established operations. However, key individual traits were here counteractive: some motivated and skilled physicians established sustained changes in electronic health record systems and institutionalised training, even despite low core business alignment.

Implementation Success Score

- **Implementation success scores** (on a scale from **1 [very poor] to 7 [exceptional]**) at the **end of the intervention** ranged from **3·9 to 6·5.**
- **Seasonality-adjusted, department-specific nvHAP incidence RRs** estimated by GLMMs were **between 0·77 and 0·49**, corresponding to **reductions of 23–51%.**
- A **higher implementation success score correlated** with a **lower nvHAP incidence RR (Pearson correlation –0·71, p=0·034).**
- An **increase of 1·0 in implementation success score** was **associated** with a **reduction in nvHAP RR by a factor of 0·66** (95% CI 0·47–0·92).

SUMMARY OF THE FINDINGS

OUTCOMES	
nvHAP incidence rate	✓ **No. of nvHAP cases occurred during 361 947 patient-days: 451** ✓ **Reduction of nvHAP incidence rate during intervention as compared to baseline.** • **Baseline:1·42** (95% CI 1·27–1·58) per 1000 patient-days • **Intervention: 0·90** (95% CI 0·73–1·10) cases per 1000 patient-days ✓ **The intervention-to-baseline nvHAP incidence rate ratio**, adjusted for department and seasonality: **0·69** (95% CI 0·52-0·91; p=0·0084)
All-cause in-hospitality mortality	✓ **No. of all-cause in-hospital mortality: 1558** ✓ **The adjusted RR for in-hospital mortality: 0·92** (95% CI 0·81–1·04; p=0·18)
Process measures	**(A) Application rates of nvHAP bundle prevention measures per 1000 patient-days in each department-level period:** ▪ **Comparison with the baseline:** ✓ **Bedside dysphagia screening increased** (RR 3·44 [95% CI 2·10–5·64], p<0·000) in the **intervention** period ✓ **Prescription of proton-pump inhibitors decreased** (RR 0·90 [95% CI 0·86–0·93], p<0·0001) in the **intervention** period **(B) Adherence to nvHAP bundle prevention measures:** ▪ **After 8-10 months of intervention:** ✓ The proportions of patients with **adherence to dysphagia screening and management: Odds ratio 1·72** [95% CI 0·97–3·04], p=0·064 ✓ **Discontinuation of non-indicated proton-pump inhibitors: OR: 2·01** [95% CI1·30–3·10], p=0·002
Implementation determinants	✓ **Positive core business alignment** ✓ **High perceived nvHAP risk** ✓ **Architectural characteristics promoting physical proximity of health-care staff** ✓ **Favourable key individual traits**
Implementation success	✓**Implementation success scores** (on a scale from **1 [very poor]** to **7 [exceptional]**) **at the end of the intervention** ranged from **3·9 to 6·5** ✓**Implementation success scores correlated with lower nvHAP rate ratios** (Pearson correlation –0·71, p=0·034).

Conclusion and Relevance

nvHAP is a frequent healthcare-associated infection affecting a broad patient population.

The **prevention bundle led to a reduction of nvHAP. A combination of prevention measures effectively reduced the nvHAP incidence rate.**

Intervention effectiveness correlated with successful implementation of the nvHAP bundle.

Implementation success was associated with the preventive effect.

The implementation strategy was described, as well as contextual individual and organisational factors associated with **implementation success.**

Knowledge of the determinants of implementation success might help in **upscaling nvHAP prevention.** Knowledge of these factors could help to promote nvHAP prevention in other health-care settings.

Importantly, the **distinctive description of implementation and intervention effectiveness** can be especially helpful in **the future upscaling of nvHAP prevention initiatives.**

HOW MUCH CAN WE TAKE OUT FROM THIS RESEARCH/PAPER?

This type 2 hybrid effectiveness-implementation trial was successful in simultaneously evaluating the implementation and effectiveness outcomes of the prevention interventions in reducing the incidence rate of nvHAP. The findings not only highlighted the effectiveness of prevention interventions but also revealed how key determinants influenced the implementation of the nvHAP bundle. The use of mixed methods (quantitative and qualitative approaches) helped to capture a comprehensive understanding of both the intervention's impact and the implementation process. It is crucial to distinguish the effectiveness of both implementation and intervention for upscaling the success of an intervention.2 The distinctiveness of the approach extends to a theoretically grounded implementation strategy towards achieving the implementation outcomes based on department-level ownership, education, training, and changing infrastructure, with ongoing local adaptation through the feedback of qualitative findings by the institutional implementation team.

In terms of study design, a quasi-experimental design has been used due to its practicality and feasibility in clinical settings. This design includes pre-post designs with a non-equivalent control group, and stepped wedges in which all departments received the intervention but were assigned to the timing of the intervention in a staggered form.[3] The absence of randomization in this trial can lead to biases in the effectiveness estimation of the intervention, and it becomes challenging to attribute causality directly to the intervention while the implementation outcomes were assessed and taken as the results of the different strategies. However, to address the challenges associated with this study design and to ensure the accuracy of the findings, the researcher employed various strategies including robust mixed-method approaches to triangulate findings and the use of sensitivity analysis in assessing how changes in certain variables or assumptions confounded the results of the trial.

There were several limitations of this trial that should be considered for future research. This trial was a single-centre study, and the results might not be directly applicable to other settings. This trial is recommended to be conducted in multiple sites to enhance its generalizability. Early termination of the intervention period due to the COVID-19 pandemic affected the statistical solidity, thus, the future study should be carried out within the planning timeline. In addition, the bundle design of interventions precluded the possibility of examining the effect of single bundle elements. Further research is warranted into the respective contributions of individual bundle elements. The different performances of the different sites signified the challenge and need of getting the but-in from the respective stakeholders. This type of research requires very well-trained research team members with the ability to engage with different stakeholders at different stages of implementation, upholding neutrality and non-judgmental during monitoring and assessment, having members of different research skill sets in data collection, management, analysis and interpretation.

In summary, this hybrid trial was well-conducted and can provide valuable insights into the effectiveness of the interventions in reducing the nvHAP incidence rates and how the multifaceted strategy can be effectively implemented and sustained in real-world settings.

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Research Colloquium Series 3/ 2023

PSYCHOLOGICAL HEALTH AMONG CAREGIVERS OF STROKE PATIENTS IN A TEACHING HOSPITAL IN SELANGOR

Nur Ayuni Mohd Said and Dr. Ruthpackiavaty A/P Rajen Durai

[1]Department of Nursing, Faculty of Medicine and Health Sciences UPM

Introduction:
Studies have shown that caregiving is associated with high burden that could affect caregivers' mental and physical well-being. Unfortunately, caregivers are often overlooked even by healthcare professionals. With the rise of our elderly population and morbidity from stroke, there is a need to identify the psychological health among family caregivers in our society. Greater prevalence of stress and depression, economic burden, lack of social support and changes in social relationships have been reported in stroke caregiver's role. Thus, this is study vital to carried to identify psychological health among the caregiver of stroke patients in Hospital Pengajar Universiti Putra Malaysia which is now known as Hospital Sultan Abdul Aziz Shah (HSAAS).

Objectives:
The general objective to determine the psychological health among the caregiver of stroke patients in HSAAS. The specific objective of this study includes to investigate the relationship between sociodemographic characteristics and the psychological health of the caregivers of stroke patients in HSAAS.

Methods:
A cross-sectional design with convenience sampling was employed in this study. Pearson Chi-Square and Fisher's Exact Test was used to determine the association between sociodemographic and the level of physiological health among the caregivers of stroke patient.

Results:
A total of 102 respondents participated in the study. The findings revealed the level of anxiety among caregivers was 31.94% (n=32), followed with depression 19.60% (n=20) and stress 18.93% (n=19). There was no association between socio-demographic characteristic and psychological health, as evidence by *p*-value>0.05.

Conclusions:
In this study, the total sample size was small compared to other studies. Nevertheless, the findings of this study is important to be used to account in the evaluation of caregivers of stroke patients to ensure their emotional and psychological well-being.

Keywords: Caregiver, Stroke, Depression, Anxiety, Stress

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LIVE WEBINAR

Research Colloquium Series 4/ 2023

CLINICAL EVALUATION OF MULTI-NATION, MULTI-CENTER CASE STUDY FOR SARS-COV-2 VARIANT ANALYSIS AND RESPIRATORY VIRUSES' CO-INFECTION

Shwu Fei Low, Narcisse Joseph, Leslie Thian Lung Than, Syafinaz Amin Nordin, Hui Yee Chee*

Department of Medical Microbiology, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia

Introduction:

The outbreak of pneumonia cases diagnosed as coronavirus disease 2019 (COVID-19) led to the disruption of community-circulating respiratory viruses, which exacerbated the severity of suspected co-infected severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) patients with common respiratory viruses. As the world moves towards the endemic phase of COVID-19, Malaysia has recorded over 5 million cases and nearly 40,000 deaths. However, there are arguments about uncertain positions in studies concerning co-infections of respiratory viruses. Some studies have reported no significant decrease in the co-circulation of common respiratory viruses during the COVID-19 pandemic. Therefore, there is a need for concerns and surveillance regarding the co-infection of respiratory viruses and SARS-CoV-2.

Objective:

To examine the circulating SARS-CoV-2 variants and determine the presence of other respiratory viruses in both SARS-CoV-2 positive and negative clinical samples.

Methodology:

Real-time Polymerase Chain Reaction (PCR) was conducted on 103 SARS-CoV-2 positive clinical samples and 108 SARS-CoV-2 negative clinical samples obtained from Hospital Sultan Abdul Aziz Shah UPM (HSAAS) (JKEUPM 2021-838). These samples underwent heat inactivation at 56°C for 30 minutes before total viral nucleic acids were extracted using the SEEPREP32 semi-automated nucleic acids extractor. The AllplexTM RV Master assay was utilized to detect various viruses, including SARS-CoV-2 (SC2, S/N, and RdRP genes), Human Adenovirus (AdV), Human Metapneumovirus (MPV), Human Rhinovirus (HRV), Human Respiratory Syncytial Virus (RSV), Influenza A Virus (Flu A), Influenza B Virus (Flu B), and Human Parainfluenza Virus (PIV). Furthermore, the NovaplexTM SARS-CoV-2 Variants VII Assay was applied to identify mutations in the S/N and RdRP genes' spike proteins (E484A, N501Y, HV69/70 deletion) and the RdRP gene of SARS-CoV-2 in the positive samples.

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LIVE WEBINAR

Research Colloquium Series
4/ 2023

CLINICAL EVALUATION OF MULTI-NATION, MULTI-CENTER CASE STUDY FOR SARS-COV-2 VARIANT ANALYSIS AND RESPIRATORY VIRUSES' CO-INFECTION

Shwu Fei Low, Narcisse Joseph, Leslie Thian Lung Than, Syafinaz Amin Nordin, Hui Yee Chee*

Department of Medical Microbiology, Faculty of Medicine and Health Sciences,
Universiti Putra Malaysia

Results:
AdV was the most common respiratory virus detected in SARS-CoV-2 positive samples, while HRV was the most frequently identified in SARS-CoV-2 negative samples. The co-infection of HRV with AdV represented the highest number of cases observed among SARS-CoV-2 negative samples. Among the studied SARS-CoV-2 positive clinical samples, the spike protein mutation groups (E484A + N501Y + HV69/70 deletion) and (E484A + N501Y) were the two most recorded mutation groups.

Conclusion:
Understanding the prevalence of co-infections and specific mutations in SARS-CoV-2 positive cases is crucial for clinical management, public health strategies, and the development of targeted interventions, including vaccine adaptations or treatments.

Research Colloquium Series
4/ 2023

PREVALENCE OF MENTAL HEALTH STATUS AND ITS ASSOCIATED FACTORS AMONG PATIENTS VISITING PRIMARY HEALTH CARE CLINIC, HOSPITAL SULTAN ABDUL AZIZ SHAH (HSAAS) UPM

Muhammad Amir Wafiy Mohd Shahmizan, Tay Huey May, Sritharan Nagendheran, AP Dr. Aneesa Abdul Rashid and Dr. Fadzilah Mohamad*

Department of Family Medicine, Hospital Sultan Abdul Aziz Shah UPM

Introduction:
Poor mental health status is a worldwide concern. The aim of this study is to identify the association of sociodemographic status, social support, and social media use toward mental health status.

Method:
A cross-sectional study was conducted from October 2022 to July 2023 at Family Medicine Specialist Clinic, HSAAS. Respondents were chosen by convenience sampling. A self-administered questionnaire that consisted of six sections: socio-demographic profile, underlying medical illness, social support (MOS), social media used and mental health screening was used. The data was analysed using SPSS.

Result:
148 respondents were recruited and 15% (n=22) were found to have poor mental health status. Mean age of respondents was 48.6 ± 13.6 and majority of them were Malay (91.2%) and had chronic illness (78.4%). Factors that were found to be significant with mental health status were social support (p=0.010) and frequency of using the internet (p=0.010). Higher the social support was associated with good mental health status, whereby the longer use of the internet a day was associated with poor mental health status.

Conclusion:
The prevalence of poor mental health status among patients visiting primary health care clinics was 15%. This study serves as a reference for policymakers and relevant authorities to plan for an intervention to address mental health issues particularly among primary care patients.

Keywords: Mental health status ,primary care, Social support, depression, anxiety

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LIVE WEBINAR

Research Colloquium Series
4/ 2023

KNOWLEDGE, AWARENESS , PRACTICE AND ITS ASSOCIATED FACTORS ON PROPER HOME BLOOD PRESSURE MONITORING (HBPM) AMONG MEDICAL DOCTORS IN UPM.

Arvind Sreedharan, Nur Ain Syamimie Ahmad Yaakub, Muhammad Amir Izzat Mohd Nor, Dr. Fadzilah Mohamad and AP Dr. Aneesa Abdul Rashid*

Department of Family Medicine, Hospital Sultan Abdul Aziz Shah UPM

Introduction:
High blood pressure, often known as hypertension, is a chronic medical problem that affects the majority of people globally. In managing hypertension, measuring accurate blood pressure plays a vital role. Home blood pressure monitoring (HBPM) has been introduced in preventing hypertension and making a new trend of self-healthcare among communities. When it comes to HBPM in the medical sector, practitioners are expected to have a thorough grasp, awareness, and practice in pursuing a patient's subsequent diagnosis. The aim of this study is to determine the level of knowledge, practices of recommendation, awareness of normal HBPM and its associated factors on proper home blood pressure monitoring (HBPM) among medical doctors in UPM.

Methods:
A cross-sectional study was conducted among medical doctors from the Faculty of Medicine and Health Sciences (FMHS) and Hospital Sultan Abdul Aziz Shah (HSAAS), Universiti Putra Malaysia. A total of 107 doctors participate in the study. A set of questionnaires used which includes participants' socio-demographic profiles, knowledge of HBPM, practice of recommending HBPM and awareness of normal level of HBPM.

Results:
The calculation on response rate is 56%. Results showed that the knowledge mean is 13.46 (range score: 0-22). For the practice of recommending HBPM, 97% have a high practice of recommending, meanwhile only 39% of them have good awareness of normal HBPM value. Only specialty or department factors are significant to the practice of recommending HBPM and awareness of normal HBPM value.

Conclusion:
Sociodemographic factors (age, gender, race, highest education qualification, position, speciality/department) does not affect the level of knowledge of HBPM among medical doctors in the FMHS and HSAAS, Universiti Putra Malaysia. Meanwhile, all sociodemographic factors did not affect the practice of recommendation and awareness on normal HBPM except for speciality/department factors. The results of this study will also provide useful data for more researchers conducting other similar studies.

Keywords: Level of knowledge, practice of recommending, awareness of normal HBPM value, home blood pressure monitoring, medical doctors

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LIVE WEBINAR

CLINICAL EPIDEMIOLOGY

Summary of

By Nurfaizah Saibul

AN INTRODUCTION TO EFFECTIVENESS-IMPLEMENTATION HYBRID DESIGNS

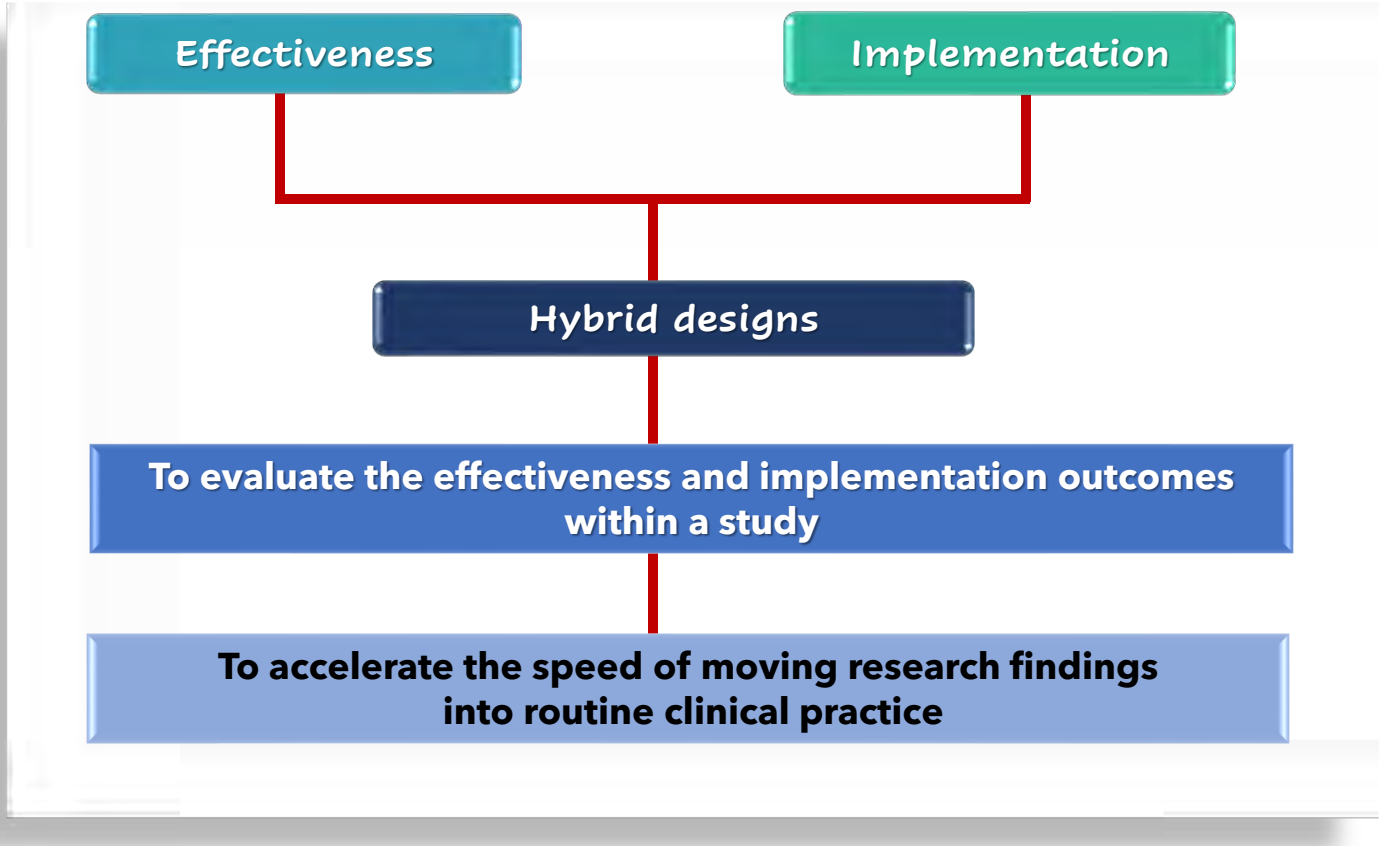
Landes SJ, McBain SA, Curran GM. Psychiatry Res. 2019 Oct;280:112513. doi: 10.1016/j.psychres.2019.112513. Epub 2019 Aug 9. PMID: 31434011; PMCID: PMC6779135.

INTRODUCTION

The traditional research pipeline that encourages a stepwise approach to moving an intervention from efficacy trials to the real world could take a long time.

Figure 1. Traditional Research Pipeline

Why do hybrid effectiveness-implementation designs?



CLINICAL EPIDEMIOLOGY

Summary of

AN INTRODUCTION TO EFFECTIVENESS-IMPLEMENTATION HYBRID DESIGNS

INTRODUCTION

Hybrid designs

- Relatively focusing on both the effectiveness of the clinical intervention and its implementation, but the type of trial (e.g., stepped wedge, cluster randomized, pilot), which is often referred to as a design, is not necessarily yoked to the type of hybrid.
- Various types of randomized and non-randomized trial designs can be used in the context of a hybrid depending on the **specific aims.**
- To design **any type of hybrid study**, it is important to use a **framework** (e.g., CFIR, PRECIS-2) to guide the study process and **reporting** of outcomes (e.g., RE-AIM).

Note:

- CFIR: The Consolidated Framework for Implementation Research
- PRECIS-2: The PRagmatic Explanatory Continuum Indicator Summary-2
- RE-AIM: Reach, Effectiveness, Adoption, Implementation, and Maintenance

TYPES OF HYBRID DESIGNS

There are **3 types of hybrid designs** which vary based on their primary focus and the amount of emphasis on effectiveness versus implementation outcomes.

HYBRID DESIGNS

TYPE 1

Focuses on the **effectiveness outcomes** of an intervention while exploring the implementability of the intervention.

TYPE 2

A **dual focus on effectiveness and implementation outcomes** that simultaneously testing or piloting of implementation strategies during an effectiveness trial.

TYPE 3

Focuses primarily on **implementation outcomes** while also collecting effectiveness outcomes as they relate to uptake or fidelity of the intervention.

CLINICAL EPIDEMIOLOGY

Summary of

AN INTRODUCTION TO EFFECTIVENESS-IMPLEMENTATION HYBRID DESIGNS

TYPES OF HYBRID DESIGNS

Type 1

A hybrid type 1 design focuses **primarily on the effectiveness outcomes of a clinical or prevention intervention** while exploring the "implementability" of the intervention.

This design helps to identify what is needed to support the implementation in the real-world setting - to identify barriers and facilitators of implementation that will inform the selection of appropriate implementation strategies.

This design could be a combination of **traditional effectiveness study and "process evaluation"** to describe the implementation experience, identification of how the intervention needs to be adapted for the setting, and/or what is needed to support the delivery of the intervention to the target people and place.

The implementation outcomes can be obtained via interview, survey, and/or observation of participants.

This design is indicated when the clinical effectiveness evidence remains limited, therefore studying implementation alone is premature.

It is also recommended to be adopted when effectiveness study conditions offer an ideal opportunity to explore implementation issues and plan implementation strategies for the next stage.

- **Primary focus**: To test the effectiveness of a clinical intervention.
- **Secondary focus:** To explore implementation related factors.

CLINICAL EPIDEMIOLOGY

Summary of

AN INTRODUCTION TO EFFECTIVENESS-IMPLEMENTATION HYBRID DESIGNS

TYPES OF HYBRID DESIGNS

Type 2

A hybrid type 2 design consisting of an **effectiveness trial paired with an implementation trial** - has a dual focus on the effectiveness of clinical intervention and its implementation outcomes.

This design allows for the **simultaneous testing or piloting of implementation strategies while conducting an effectiveness trial.**

This hybrid design is ideal when studying interventions that are supported by existing evidence of effectiveness in other settings or populations.

There is no clear designation of how each aspect should be allotted (e.g., 50/50, 60/40).

It is important to clearly define the intervention components versus the implementation strategy components. The implementation strategy should be plausible in the real world.

This design requires an explicit measurement of implementation outcome (e.g., adoption, fidelity).

Both qualitative and quantitative methods can be used in this design. The investigators will be able to corroborate, compare, and expand the findings and identify barriers to and facilitators of intervention fidelity.

To simultaneously identify the effectiveness of the intervention and test an implementation strategy aimed at increasing the use and fidelity of the intervention.

CLINICAL EPIDEMIOLOGY

Summary of

AN INTRODUCTION TO EFFECTIVENESS-IMPLEMENTATION HYBRID DESIGNS

TYPES OF HYBRID DESIGNS

Type 3

A type 3 hybrid focuses **primarily on implementation outcomes** (e.g., testing of implementation strategies) while also identifying effectiveness outcomes as they relate to uptake or fidelity of the intervention.

This design is essentially **a combination of an implementation trial and evaluation of patient outcomes.**

This design compares implementation strategies and when a study is conducted in healthcare settings, the strategies usually target provider, clinic, and/or system levels and their impact on implementation outcomes.

The option to use this design is also appropriate when there is a high-level need or call for implementation despite a paucity of evidence base (e.g., strong momentum within a healthcare system or a formal mandate).

This type of hybrid **works best with easily accessible clinical outcomes** (e.g., those that can be passively assessed through the medical record).

It is not ideally designed for outcomes that usually require primary data collection.

- **Primary focus**: Implementation outcomes (adoption, fidelity & sustainability)
- **Secondary focus**: To observe or gather information on the intervention outcomes.

CLINICAL EPIDEMIOLOGY

Summary of

AN INTRODUCTION TO EFFECTIVENESS-IMPLEMENTATION HYBRID DESIGNS

Types of Hybrid Designs and the Associated Research Aims and Outcomes

Hybrid design	Type 1	Type 2	Type 3
Research Aims			
➢ **Primary**	Determine the effectiveness of an intervention	Determine the effectiveness of an intervention	Determine the impact of an implementation strategy
➢ **Secondary**	A better understanding of the context for implementation	**Co-Primary Aim:** Determine feasibility and/or (potential) impact of an implementation strategy	Assess the clinical outcomes associated with implementation
Primary Outcome	Clinical effectiveness	Clinical effectiveness and implementation outcomes	Implementation outcomes

Conclusion and Recommendation

Hybrid designs can provide insight into how clinical outcomes are related to implementation outcomes (e.g. levels of adoption and fidelity).

By concurrently gathering both effectiveness and implementation data, investigators will be aware of crucial contextual factors related to the success of their interventions and the potential barriers that may affect the implementation outcomes of the interventions.

Prior to choosing an appropriate hybrid design, it is important to design the effectiveness trials with dissemination and implementation components in the first stages of study development.

It is also possible to start with an implementation study in a new effort to translate an evidence-based intervention into clinical practice.

It is not required to wait for "perfect" effectiveness data before moving to implementation research as additional effectiveness data can be gathered while testing implementation strategies.

To ensure the implementability of an effectiveness study, gathering input from stakeholders before the trial is crucial to developing culturally-adapted interventions that increase their engagement and participation.

Open Science Practice in Clinical and Biomedical Research

Boon-How Chew[1,2]

[1]Department of Family Medicine, Faculty of Medicine & Health Sciences, Universiti Putra Malaysia, 43400 Serdang, Selangor, Malaysia.
[2]Clinical Research Unit, Hospital Sultan Abdul Aziz Shah (HSAAS Teaching Hospital), Universiti Putra Malaysia, Serdang, Malaysia
Email: chewboonhow@upm.edu.my

I think everyone, from every government, policymakers, international and national stakeholders to many scientists, clinical and biomedical researchers need a clearer direction about the values and principles of Open Science (OS). This article is motivated following my recent participation in the International Training Workshop on Open Science and SDGs in Beijing, China from 28th August to 8th September 2023. A note of sincerest thanks and gratefulness to Chinese Academy of Sciences (CAS) [https://english.cas.cn/], Committee on Data of the International Science Council (CODATA) [https://codata.org/] and their international collaborators who had chosen me to be worthy of the sponsorship out of more than 300 international applicants.

Open Science (OS) [1] is defined as an inclusive construct that combines various movements and practices aiming to make multilingual scientific knowledge openly available, accessible and reusable for everyone, to increase scientific collaborations and sharing of information for the benefits of science and society, and to open the processes of scientific knowledge creation, evaluation and communication to societal actors beyond the traditional scientific community [Appendix 1: **UNESCO's** Open Science Diagram]. It comprises all scientific disciplines and aspects of scholarly practices, including basic and applied sciences, natural and social sciences and the humanities, and it builds on the following key pillars: open scientific knowledge, open science infrastructures, science communication, open engagement of societal actors and open dialogue with other knowledge systems [Appendix 2: **UNESCO's** Open Science Domains].

Malaysian Open Science (MOS) Platform (https://mosp.gov.my/) is in existent since last year promoting open access of data and publication in the country [2,3]. The MOSP initiative was approved and endorsed by the Malaysian Cabinet on the 14 Aug 2020 (https://mosp.gov.my/about). However, the culture of data sharing was not well received with < 20% were openly shared [4]. The different concerns expressed by the researchers included misuse of data by others (23%), misinterpretation of data (21.3%), lack of appropriate policies and rights protection (21.3%), legal and ethical issues (18.9%), fear of losing scientific edge (10.7%) [4]. Hence, much support is required in the data management and data stewardship from others than the researchers themselves to enable the data sharing practice, beside improving awareness, understanding and confidence in OS practices, and having sound policy, services and stable infrastructures [Appendix 3: **UNESCO's** Promoting Open Science].

Truly, OS is more than just data sharing. This is well explained and supported by the OS Framework (OSF) [5].

> *"The OSF is a free open-source software project that facilitates open collaboration in science research. As a collaboration tool, OSF helps research teams work on projects privately or make the entire project publicly accessible for broad dissemination. As a workflow system, OSF enables connections to data, preprints, and data management and research planning that researchers already use, streamlining their process and increasing efficiency. Post your work, solicit feedback, and tag categories for others to find, comment on, and engage with you."*

This is in line with the UNESCO Recommendation on Open Science that OS is the practice of science as in the scientific clinical and biomedical research that it is 'opened' from the beginning to the end throughout the whole research process [1,5]. This includes sharing research protocols, making public research tools, involving public and patient in the research planning [6,7], transparent in the research undertakings, collaborative with experts and conduct high-quality research with integrity. An example of this was previously shared by AP Dr. Subapriya Suppiah from a radiologist's perspective [8]. You may want to explore the Tips and Tricks about the OSF on how to best practice OS in your next research project (https://help.osf.io/article/576-tips-and-tricks):

Tip 1: Metadata For Improving Discoverability, Sharing, Collaboration, And Reuse Of Your Work
Tip 2: Connecting PIDs For A Persistent Complete Research Story
Tip 3: Finding And Reusing Data On A Generalist Repository
Tip 4: Evaluating Data Viability
Tip 5: Getting To Know The OSF: The Basics
Tip 6: Connecting Your Research Tools On The Open Science Framework
Tip 7: Get The Most Out Of Your OSF Preprint

Additional challenges of practising OS include compatibility of OS with intellectual property rights [9] and sustainability of OS [10]. OS is to be as open as possible so that all stakeholders can appreciate its full meaning and benefit from science via the FAIR (findable, accessible, interoperable and reusable) principles [11], but at the same time be as close as possible to the local problems, values, cultures and legal requirements via the CARE (collective benefit, authority to control, responsibility and ethics) principles [12]. OS does not mean indiscriminate openness, and consent of or licence to use any open sources of research product must first obtain permission from the intellectual property rightsholder. The similar goes to potential rightsholders to advocate use of copyright and licence to force the openness of your free research/scientific products.

OS does not mean free of cost. The initial shift to OS may require some investments on the infrastructures and capacity building, and likely similar operation costs to maintain them. However, with the OS practice, science will yield multiple returns on the investment from accelerated of high-quality research, innovation and commercialisation [Appendix 4: **UNESCO's** Values and Principles of Open Science].

Lastly, I call upon every clinical and biomedical researcher, every administrator of research institution and centre to promote OS, to support OS initiatives and to practice OS as outlined by this article. You can consider the Center for Open Science's system-wide effort through the Theory of Change strategy [https://www.cos.io/impact] to proactively reform the scientific practice in your research, norms and reward system in your institution, and to elevate rigor, transparency, sharing, and reproducibility of research products as the emerging culture.

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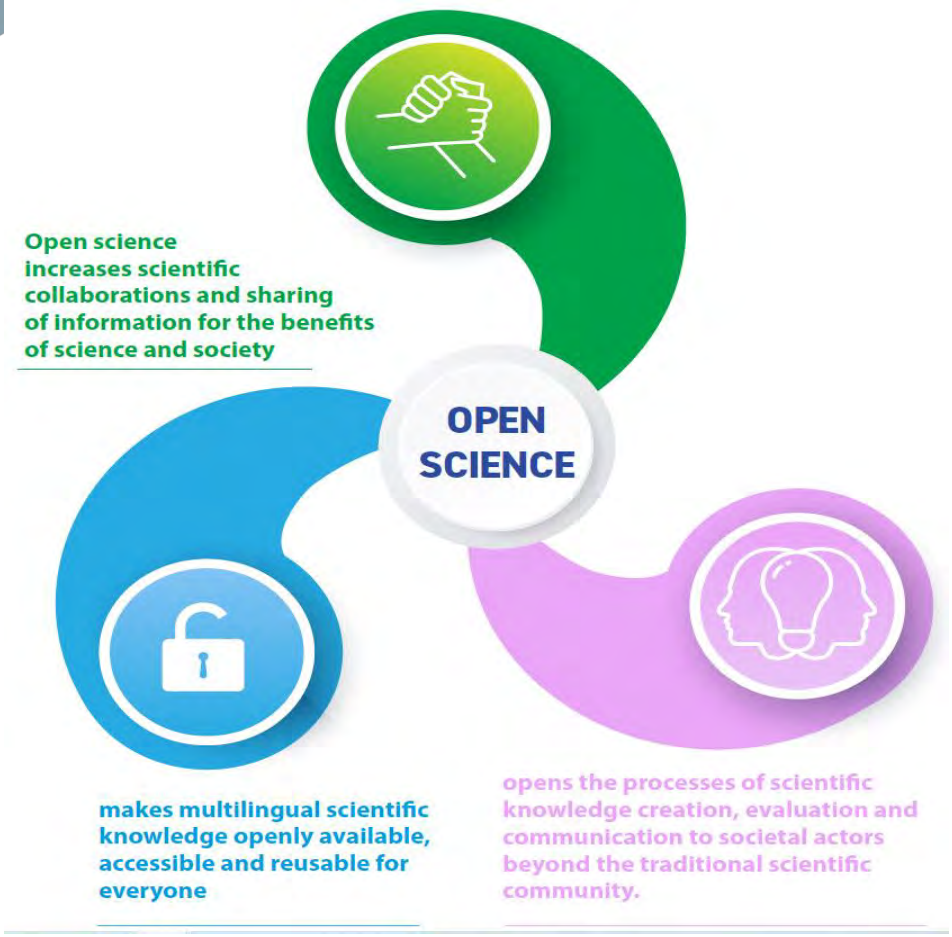
Appendix 1: **UNESCO's** Open Science Diagram



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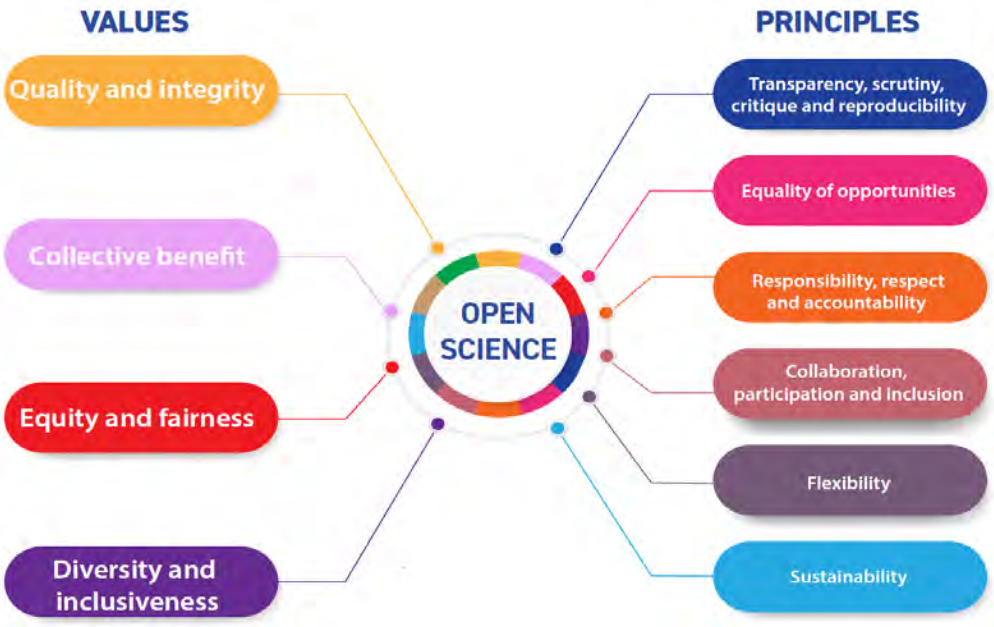
Appendix 2: **UNESCO's** Open Science Pillars

Taken from UNESCO Understanding open science Fact Sheet. Page 6. file:///F:/3.Collaboration/Open%20Science/What%20is%20OS.pdf

Appendix 3: **UNESCO's** Promoting Open Science

Taken from UNESCO Recommendation on Open Science. Page 33. Published by the United Nations Educational, Scientific and Cultural Organization, 7, place de Fontenoy, 75352 Paris 07 SP, France. 2021. SC-PCB-SPP/2021/OS/UROS, 10.54677/MNMH8546. https://en.unesco.org/science-sustainable-future/open-science/recommendation

Appendix 4: UNESCO's Values and Principles of Open Science



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A Poem by ChatGPT on inter-relatedness of the 17 Sustainable Development Goals (SDGs)

Prompted by AP Dr. Boon-How Chew

I believe we all can see the interrelation and interdependency of all the 17 SDGs. I feel overwhelmed emotionally and cognitively to put them into writing. Thus, I prompted ChatGPT3.5 to draft a poem. I am sure you would love it and amazed by it...

In a world where hope paints the sky so wide,
Seventeen stars in harmony abide,
Guiding our journey, an intertwined quest,
Where each goal's success propels the rest.

End poverty's grip, a shared beginning,
Where hunger, too, finds its quiet ending.
From here, health blooms in every land,
And education's gift, held hand in hand.

Gender equality fuels the pace,
As clean waters flow in life's embrace.
Energy's access, economies thrive,
Inclusive growth, where all can strive.

Infrastructure sturdy, inequality fades,
In cities of progress, where innovation cascades.
Sustainable consumption, a mindful choice,
As climate action unites our voice.

Oceans' conservation and land's restoration,
Inclusive societies, the heart of each nation.
Global partnerships bind us all,
In means of implementation, we stand tall.

These Seventeen Stars of Sustainability,
A web of hope, a global fraternity,
In each goal's embrace, the others find,
A world in harmony, all intertwined.

In unity, they drive our global plight,
Toward a future where dreams take flight,
In the glow of sustainable light.

Educational Papers in BMJ and Other

1

HOW TO CHECK A SIMULATION STUDY

Simulation studies, valuable in epidemiology and biostatistics, pose challenges in their successful execution. Unforeseen outcomes may arise, prompting the need for guidance on validating such studies and designing and conducting them to yield results that are more easily verifiable.

To read more, click [HERE]

2

HOW TO READ A PAPER: PAPERS THAT REPORT DRUG TRIALS

The value of a drug should be assessed considering safety, tolerability, efficacy, and price. Efficacy measurement should ideally focus on clinically relevant endpoints for patients, and if surrogate endpoints are used, they must be valid. Additionally, promotional literature with low scientific validity, like uncontrolled before-and-after trials, should not impact medical practice.

To read more, click [HERE]

3

HOW TO READ A PAPER: STATISTICS FOR THE NON-STATISTICIAN. I: DIFFERENT TYPES OF DATA NEED DIFFERENT STATISTICAL TESTS

When evaluating statistical tests in a paper, start by assessing the comparability of groups at baseline. Ensure that the chosen test aligns with the type of data analyzed (parametric or non-parametric, paired or unpaired). Use a two-tailed test when the intervention's effect could be negative. Verify if data analysis adheres to the original study protocol. If obscure tests are employed, authors should justify their choice and provide references for clarification.

To read more, click [HERE]

4

HOW TO READ A PAPER: STATISTICS FOR THE NON-STATISTICIAN. II: “SIGNIFICANT” RELATIONS AND THEIR PITFALLS

When evaluating statistical tests in a paper, start by assessing the comparability of groups at baseline. Ensure that the chosen test aligns with the type of data analyzed (parametric or non-parametric, paired or unpaired). Use a two-tailed test when the intervention's effect could be negative. Verify if data analysis adheres to the original study protocol. If obscure tests are employed, authors should justify their choice and provide references for clarification.

To read more, click [HERE]

Educational Papers in BMJ and Other

4

HOW TO READ A PAPER: PAPERS THAT SUMMARISE OTHER PAPERS (SYSTEMATIC REVIEWS AND META-ANALYSES)

A systematic review provides a comprehensive summary of primary studies, employing explicit and reproducible methods. In contrast, a meta-analysis involves mathematically synthesizing results from multiple studies addressing the same hypothesis in a consistent manner. While meta-analysis enhances result precision, it is crucial to verify the validity and reliability of the review methods.

To read more, click [HERE]

5

HOW TO READ A PAPER: PAPERS THAT GO BEYOND NUMBERS (QUALITATIVE RESEARCH)

Qualitative methods seek to interpret phenomena by understanding the meanings individuals attribute to them. Qualitative research may generate initial questions for subsequent exploration in quantitative studies. Effective qualitative studies addressing clinical problems pose clear questions and employ multiple research methods, a practice known as triangulation. The analysis of qualitative data should adhere to explicit, systematic, and reproducible methods.

To read more, click [HERE]

6

HOW TO READ A PAPER: PAPERS THAT TELL YOU WHAT THINGS COST (ECONOMIC ANALYSES)

An economic analysis can be defined as an analysis that uses analytical techniques to define choices in resource allocation. This article is based largely on a short booklet by Professor Michael Drummond1 and two of the forerunners to the “Users' Guides to the Medical Literature” series.

To read more, click [HERE]

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"

Logistic regression

Key points from hybrid webinar simple, multiple, multinomial and ordinal logistic regression

by Nur Aazifah Ilham[1] and Lim Poh Ying[2]
[1]Clinical Research Unit, HSAAS; [2]Department of Community Health, FMHS UPM

What is Logistic Regression?

- Estimate the relationship between the categorical dependent variable with one or more independent variable/covariate
- Common in medical studies
- Goal: To establish a model that

❑ Best fit

❑ Parsimonious

❑ Biologically sound/Biological plausibility

How parameters will be estimated in logistic regression?

There are many methods for parameter estimation in logistic regression, but commonly in medical health research, we use maximum likelihood.

What is maximise likelihood estimation?

Estimation method to find the value of model parameters that make the observed data most probable under the model

Terminology:

Parsimonious

A parsimonious model is a model that achieves a desired level of goodness of fit using as few explanatory variables as possible.

Parameter

Parameters do not relate to actual measurements or contribute to individuals but will quantify the theoretical model.

Variables

are quantities that vary among individuals.

Estimation

The process of calculating statistics from sample data as an approximation of a parameter of the population

- Two types of estimation:

– Point: a single numerical value used as an estimation of a parameter value.

– Interval: two numerical values presented as a range that includes the parameter value, confidence interval.

What are the types of logistic regression?

Independent variables/ Predictor	Dependent Variables/ Outcome measure	Example	Logistic Regression
Single variable	Binary	Cholesterol level ~ CAD+ or CAD-ve	Simple
Multiple	Binary	Age+Cholesterol level+Gender ~ CAD+ or CAD -	Multiple
Single/ Multiple	Polytomous(>2)	Parents education level~Food choice by children (Fast food, Vegan, Balance diet)	Multinomial
Single/Multiple	Ordinal	Years of smoking ~Stage of cancer	Ordinal

Equation in logistic regression:

$$\ln\left(\frac{p}{1-p}\right) = b_0 + b_1 X$$

$$OR = e^{bx}$$

Odd ratio is the product of exponential of beta coefficient

What is an Odd ratio?

- Odds=Chance
- Odds of an event is the ratio between the number of events occurring vs the number of events not occurring
- Odd ratio is calculated by dividing two odds
- OR> 1, OR =1, OR <1

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B) Lower	Upper
Step 1[a]	dbp	.050	.003	212.621	1	.000	1.051	1.044	1.058
	chol	.137	.035	15.663	1	.000	1.146	1.071	1.227
	gender(1)	.398	.092	18.552	1	.000	1.488	1.242	1.783
	Constant	-7.242	.349	429.940	1	.000	.001		

a. Variable(s) entered on step 1: dbp, chol, gender.

Steps in data analysis :

1)Data exploration and cleaning

Checking data set, looking at measurement, level of data, missing data and outliers.

2)Univariable analysis

– Simple logistic regression – open enter

3)Variable selection – Applicable to multivariable analysis of multiple, multinomial and ordinal logistic regression.

Univariate analysis p-value < 0.25 put in the final model

There are many methods (in SPSS) such as backward selection, forward selection) but bear in mind the aim is to produce a model of:

- ❑ Best fit
- ❑ Parsimonious
- ❑ Biologically sound/Biological plausibility

4)Checking multicollinearity/interaction

5)Checking model adequacy(model fit) and assumption

- Hosmer-Lemeshow Test : p.value Chi-Square >0.05
- Area under the curve : >0.7
- Correctly Classified Percentage : >70%

6)Assumptions

a)Random sample

b)Independent sample- error term should be independent

c)Dependent variable- binary/dichotomous variable

d)No multicollinearity

e)Linearity- There is a linear relationship between continuous x and logit y.

7)Interpretation

Terminology:

Multicollinearity
Correlation between the independent variable

Interaction
Situation in which two or more predictor/risk factors modify the effect of each other or outcome.

It can be an additional or multiplication interaction.

✓ Checking model adequacy(model fit) and assumption

Model Fit/Model Adequacy/Goodness of Fit

Tests to determine whether a set of actual observed values match with the predicted by the model.

Hosmer-Lemeshow test

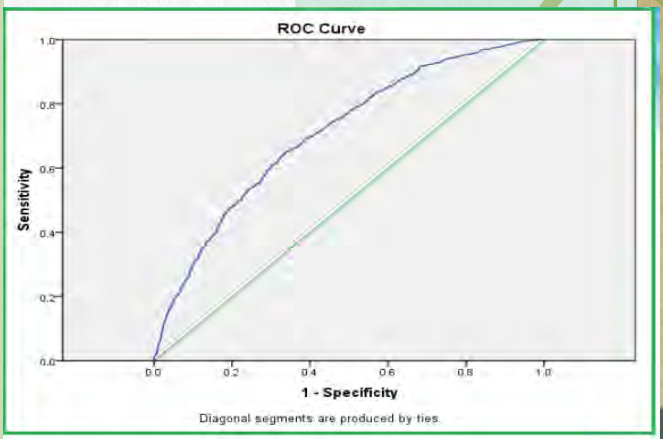
- Based on grouping cases into deciles of risk
- It compares the observed probability with the expected probability within each centile
- P-value > 0.05 meaning there is no significant difference between the observed probability and the expected probability

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	10.790	8	.214

ROC

- Range from 0-1
- A value of 0.5 means the model cannot be used for discrimination
- The recommended area for model fitting is at least 0.7



Area Under the Curve

Test Result Variable(s):Predicted probability

Area	Std. Error[a]	Asymptotic Sig.[b]	Asymptotic 95% Confidence Interval	
			Lower Bound	Upper Bound
.709	.011	.000	.688	.730

The test result variable(s): Predicted probability has at least one tie between the positive actual state group and the negative actual state group. Statistics may be biased.

a. Under the nonparametric assumption

b. Null hypothesis: true area = 0.5

Classification table

- Classified percentage >70% is consider good.
- Can calculate sensitivity and specificity

Classification Table[a]

Observed			Predicted		
			coronary artery disease		Percentage Correct
			no cad	cad	
Step 1	coronary artery disease	no cad	4036	33	99.2
		cad	604	17	2.7
	Overall Percentage				86.4

a. The cut value is .500

Simple Logistic Regression

- To estimate the relationship between a single IV/predictor to a binary outcome.
- Use as a preliminary step in selecting variables for multiple logistic regression.
- Rarely being done a lot as it did not cater for the confounding/third variable in the model.
- Logistic regression is similar to ordinary least squares (OLS) regression, but it uses a different function to model the relationship between the dependent variable and the independent variables.
- The logistic function is used to transform the predicted probabilities from the model into probabilities that are between 0 and 1.

Multiple logistic regression

Multiple logistic regression is a statistical method used to analyze binary dependent variables (i.e., variables that have only two possible outcomes, such as yes/no, true/false, or heads/tails) with more than one independent variable. It is used to identify/predict the factors that are associated with the outcome of the dependent variable. Multiple logistic regression, incorporating all relevant variables simultaneously helps uncover the collective influence or confounding on the outcome.

For instance, in research objective is to investigate whether diabetes (binary outcome: yes and no) is affected by a sedentary lifestyle, treatment A, soft drink intake and intervention program.

Variable selection methods, including forward selection and backward elimination, compute the best model. Evaluation of the model considers factors such as parsimony, choosing models with a balance of simplicity and explanatory power, biological plausibility, and adherence to assumptions like random sampling, independence of samples, absence of multicollinearity, linearity, and absence of outliers.

In the end, a comprehensive analysis and rigorous variable selection process lead to a well-validated model, providing valuable insights into the complex interplay between various factors and the likelihood of diabetes. This model, meeting the assumptions and criteria outlined, can serve as a reliable tool for understanding and predicting diabetes risks in a given population.

The results of a multiple logistic regression model are typically reported in the form of coefficients and odds ratios. The coefficients represent the change in the log odds of the dependent variable for a one-unit increase in the independent variable. The odds ratios represent the ratio of the odds of the dependent variable occurring for a given value of the independent variable to the odds of the dependent variable occurring for the reference value of the independent variable.

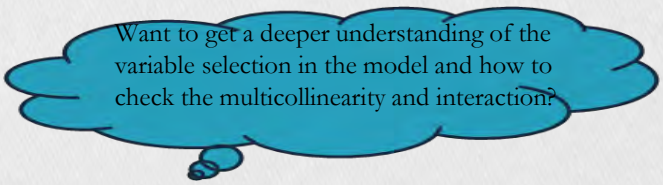
Analysis Steps:

- Start with a single independent variable (Simple logistic regression)
- Multiple logistic regression: Expand to include all relevant variables.
- Check for multicollinearity and interaction(preliminary final mode).
- Validate assumptions.
- Finalize the model for presentation.

Variable selection method

Forward selection: Variables are sequentially entered into the model, from most significant first

Backward selection: All variable are entered in the model and then sequentially removed, from the least significant first)



Contact cru at cru_hsaas@upm.edu.my if you are interested in watching the recording hybrid webinar and SPSS demonstration as well as getting the slides and the training dataset.

Multinomial Logistic Regression: An Introduction

Multinomial logistic regression is a statistical method to analyse categorical data with more than two categories. This type of regression is often used to study factors associated with choice, preference and decisions.

Example :

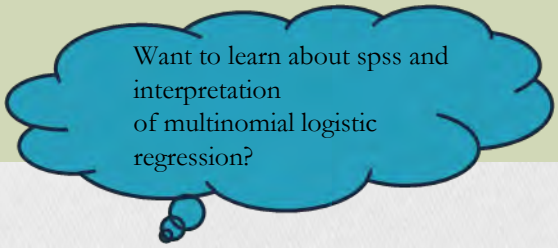
Let's say we want to study the factors associated with the type of noodles preferred by Malaysian consumers. We could use multinomial logistic regression to analyse the data. The DV would be the type of noodles preferred (laksa, curry mee, or mee goreng) and the IVs could be age, gender, income group, etc.

The multinomial logistic regression would model the probabilities of each of the three categories of the DV. For example, the model would estimate the probability of a consumer preferring laksa, the probability of a consumer preferring curry mee, and the probability of a consumer preferring mee goreng.

The results of the multinomial logistic regression would tell us which factors are associated with a higher or lower probability of a consumer preferring a particular type of noodles. For example, we might find that younger consumers are more likely to prefer laksa, or that consumers with a higher income are more likely to prefer curry mee.

Conclusion

Multinomial logistic regression is a powerful tool for analysing categorical data with more than two categories and understanding the factors associated with the choices, preferences, and decisions of individuals. It is often used in marketing research, consumer behaviour research, and other fields.



Contact cru at cru_hsaas@upm.edu.my, if you are interested to watch the hybrid webinar and SPSS demonstration as well as getting the slides and the training dataset.

Ordinal Logistic Regression: An Introduction

Ordinal logistic regression is a statistical method used to dependent variable ordinal data, which is data that can be ranked into categories but does not have equal intervals between categories. This type of regression is often used to study factors associated with attitudes, opinions, and beliefs.

Ordinal logistic regression differs from simple and multiple logistic regression in that it uses cumulative probabilities of categories in its equation. An example of ordinal logistic regression is to study the factors associated with higher/lower obesity groups.

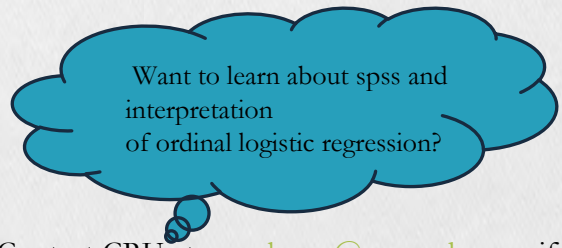
•The assumptions for ordinal logistic regression are:

- •The dependent variable must have ordinal data with more than two categories.
- •The independent variable can be continuous or categorical.
- •The DV must have mutually exclusive categories.
- •There must be linearity between the continuous IV and DV.
- •There must be no multicollinearity for continuous IVs.

Example

Let's say we want to study the factors associated with the Likert scale of attitude towards a new product. We could use ordinal logistic regression to analyze the data. The DV would be the Likert scale (strongly disagree, disagree, neutral, agree, strongly agree) and the IVs could be age, gender, income group, etc. The ordinal logistic regression would model the cumulative probabilities of the DV categories. For example, the model would estimate the probability of a respondent strongly agreeing with the new product, the probability of a respondent agreeing with the new product, and so on.

The results of the ordinal logistic regression would tell us which factors are associated with a higher or lower probability of a respondent having a positive attitude towards the new product. For example, we might find that younger respondents are more likely to have a positive attitude towards the new product, or that respondents with a higher income are more likely to have a positive attitude towards the new product.



Contact CRU at cru_hsaas@upm.edu.my , if you are interested to watch the hybrid webinar and SPSS demonstration as well as getting the slides and the training dataset.

CURRENT EVIDENCE

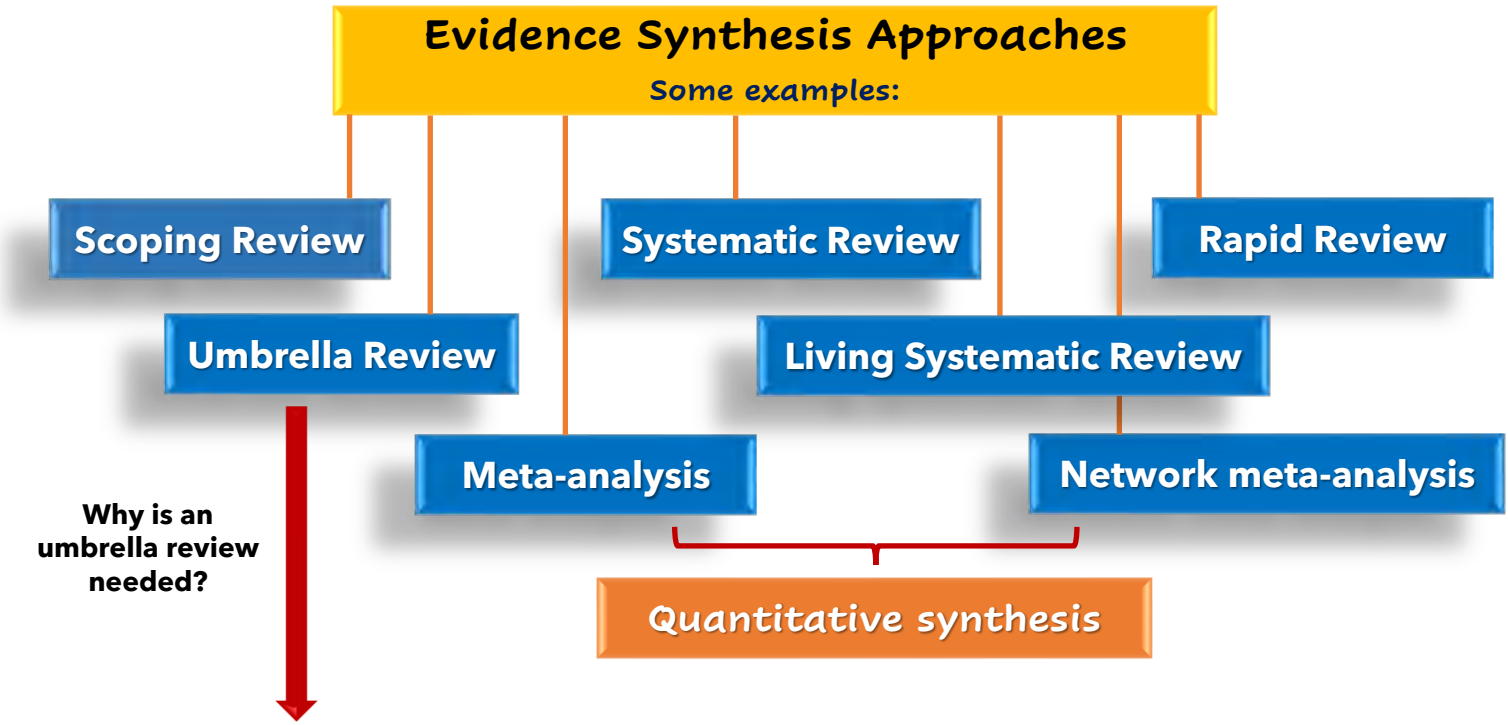
By Nurfaizah Saibul

Key Points of Webinar on

EXPLORING RESEARCH COLLABORATIONS AND NETWORKING IN THE CONTEXT OF EVIDENCE SYNTHESIS AND ECONOMIC EVALUATIONS

ASSOC. PROF. DR. SAJESH K VEETTIL
Department of Pharmacy Practice
School of Pharmacy
International Medical University (IMU)

Evidence Synthesis



Why is an umbrella review needed?

Systematic review and meta-analysis are key for evidence-based medicine. As the number of such studies increases, clinicians/decision-makers may feel overwhelmed with too many of them.

Meta-analysis on the same topic might produce inconclusive/ contradictory results

Leaving decision-makers uncertain to make a conclusion

Assess the methodological quality of the meta-analysis → **First step in Umbrella Review**

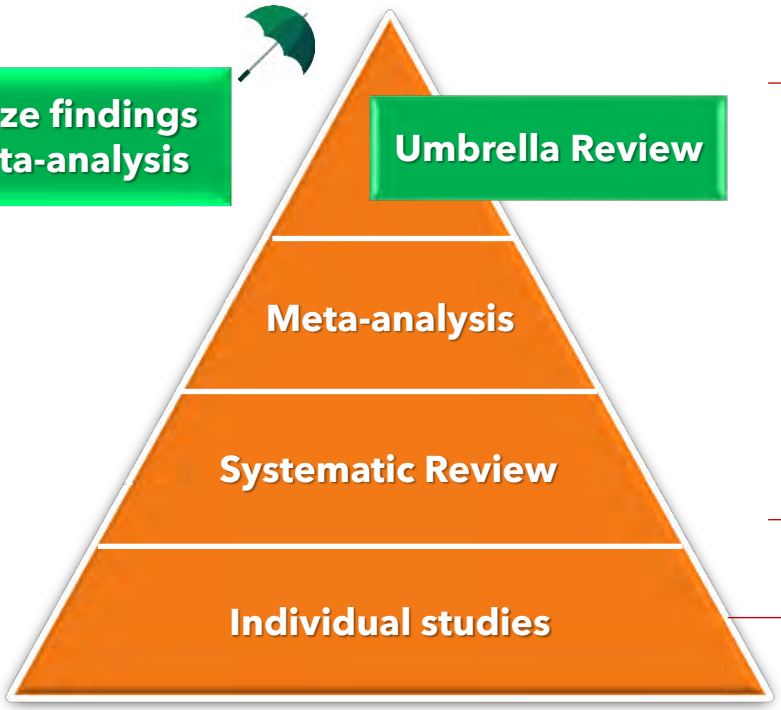
CURRENT EVIDENCE

Key Points of Webinar on

EXPLORING RESEARCH COLLABORATIONS AND NETWORKING IN THE CONTEXT OF EVIDENCE SYNTHESIS AND ECONOMIC EVALUATIONS

Umbrella Review

Summarize findings from meta-analysis



Elicit

- A free AI research assistant.
- Analyze research papers at superhuman speed.
- Automate time-consuming research tasks like summarizing papers, extracting data, and synthesizing findings.

Determine whether an umbrella review is necessary to be conducted

Research Question: PICO

P: Patient/ Problem **I:** Intervention **C:** Comparison **O:** Outcome

Types of Umbrella Review

- **Type 1:** Same condition/ same outcome, different interventions/ exposures
- **Type 2:** Same condition/ different outcomes, different interventions/ exposures
- **Type 3:** Different conditions/ different outcomes, same intervention/ exposure
- **Type 4:** Different condition/ same outcome, different interventions/ exposures

CURRENT EVIDENCE

Key Points of Webinar on

EXPLORING RESEARCH COLLABORATIONS AND NETWORKING IN THE CONTEXT OF EVIDENCE SYNTHESIS AND ECONOMIC EVALUATIONS

Tips:

The easiest umbrella review is looking for a meta-analysis of RCT

Search strategy for Umbrella Review

Should be comprehensive to find all relevant systematic reviews and meta-analyses

3 databases are enough for an umbrella review

Databases:

- Medline/ PubMed
- Embase
- Epistemonikos
- Cochrane Database of Systematic Review (CDSR)

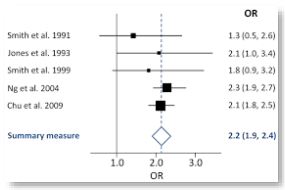
Steps of performing an umbrella review = systematic review

Protocol Registration in Prospero or Open Science Framework (OSF)

Study selection follows the PRISMA 2020 Statement

Systematic Review Manager:

Covidence, Rayyan, or ASReview (AI)



Sample of forest plot of meta-analysis

When more than 1 meta-analysis on the same research question is available (overlapping of meta-analyses), you can select **only one** meta-analysis with the following criteria:

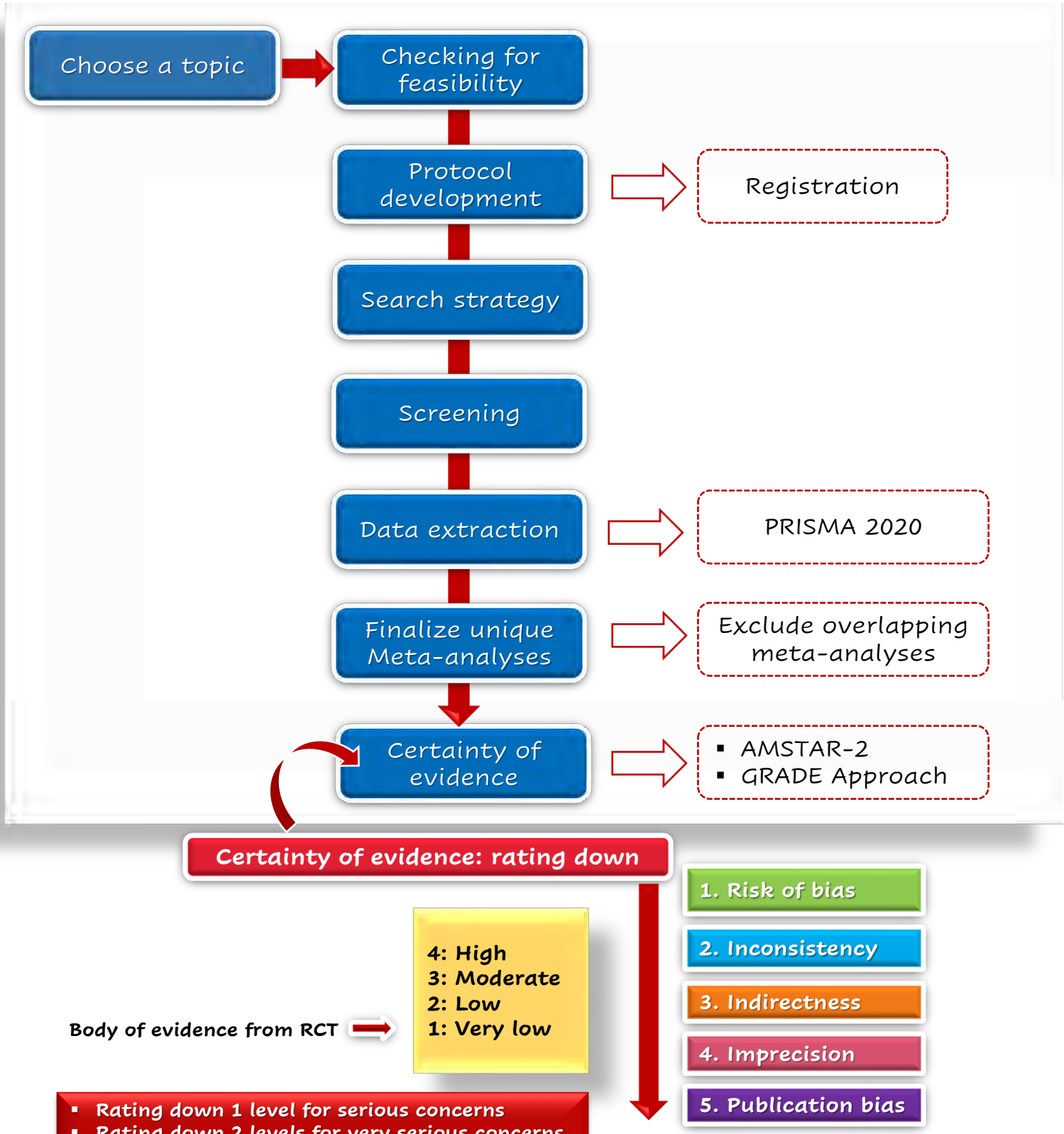
- ✓ **The largest number of data set**
- ✓ **The largest number of cases/ sample size**
- ✓ **More available information on primary studies**

CURRENT EVIDENCE

Key Points of Webinar on

EXPLORING RESEARCH COLLABORATIONS AND NETWORKING IN THE CONTEXT OF EVIDENCE SYNTHESIS AND ECONOMIC EVALUATIONS

Umbrella Review Methods



CURRENT EVIDENCE

Key Points of Webinar on

EXPLORING RESEARCH COLLABORATIONS AND NETWORKING IN THE CONTEXT OF EVIDENCE SYNTHESIS AND ECONOMIC EVALUATIONS

ECONOMIC EVALUATIONS

Economic evaluation (EE) studies including cost-effectiveness analysis (CEA) are important in providing evidence for policymakers to make healthcare decisions.

Meta-analysis of Economic Evaluation (MAEE):

Quantitatively summarize cost-effectiveness findings based on all existing studies answering the same question and stratify the findings based on income country level.

Statistical Approach: MAEE

Comparative Efficiency Research (COMER)

- To create a new meta-analysis method for cost-effectiveness studies to help in health decision-making.
- Propose pooling incremental net benefit (INB).
- In terms of the cost-effectiveness decision rule, the intervention is considered cost-effective when its INB is greater than 0 and not cost-effective when it is not.

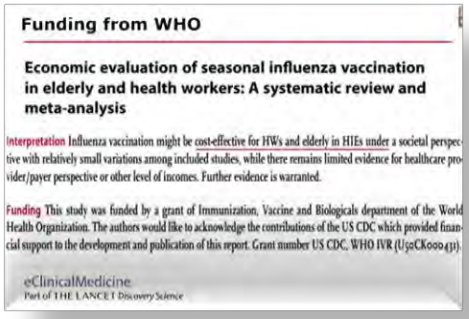
INB is expressed as the value of the incremental effect multiplied by a predetermined threshold less the incremental costs.

APPROVED

The quantitative evidence generated from MAEEs is useful in supporting clear policy recommendations and can facilitate decision-making in resource-strained settings where context-specific EEs are not available (IVIR-AC WHO, March 2021).

Output COMER methods of MAEE

- Applied in several therapeutic areas:
  - Vaccine
  - Metabolic and cardiovascular



Funding from WHO

Economic evaluation of seasonal influenza vaccination in elderly and health workers: A systematic review and meta-analysis

Interpretation Influenza vaccination might be cost-effective for HWs and elderly in HIEs under a societal perspective with relatively small variations among included studies, while there remains limited evidence for healthcare provider/payer perspective or other level of incomes. Further evidence is warranted.

Funding This study was funded by a grant of Immunization, Vaccine and Biologicals department of the World Health Organization. The authors would like to acknowledge the contributions of the US CDC which provided financial support to the development and publication of this report. Grant number US CDC, WHO IVR (U50CK000431).

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RECRUS Res.Newsl.Nov 2023;Vol. 3, Issues 25:Page 880. https://cstr.cn/33294.43.032523.RECRUS.17

WRITE A BOOK USING AI TOOLS

By: Salwana Ahmad

WRITE A BOOK USING AI TOOLS

One of the best methods to bring your ideas and expertise to life is to write an ebook. Creating an engaging ebook has never been easier, but thanks to artificial intelligence (AI), the writing process is becoming less hassle. This summarized article will help you through the general aspects of planning, writing, designing and publishing an ebook, while utilising the advantages of AI tools to make the process smoother.

TIMELINE PROCESS

1. TITLE SELECTION

- It is a very important step.
- Choose title that portray the whole book contents.
- Interesting topic will attract readers.

2. TOPIC SEARCH

- Pick your interest.
- Know your audience.
- Follow the current trends.
- Choose relevant topics.

3. FRAMEWORK OF WRITING

- Construct a details framework.
- State your objectives clearly.
- Find a trusted source of information.
- Find relevant sources of information. (from databases, libraries, references)

4. WRITING PROCESS

- Note, record, and summarize all information for the book systematically.
- Organize all the information or idea into the frameworks.
- Write them into chapters or subchapters.

5. PROOFREADING

- Incorporating the proofreading process into the book-writing stage is essential for authors who seek to produce high-quality, error-free content.

6. DESIGNING

- Increased reader engagement and a more competitive presence in the literary market.

7. PUBLISH & MARKETING

- Utilize data analytics to identify target audiences, optimize book covers, and tailor marketing strategies for maximum impact.

HOW AI HELPS?

Creative Inspiration

AI breaks through creative blocks by leveraging AI-driven suggestion models that prompt innovative storylines, characters, and settings.

Efficient Organization and Structure

AI tools provide efficient outlining, helping authors maintain a clear and coherent structure throughout their draft.

Develop and Refine Idea

AI writing assistants offer real-time suggestions for grammar, style, and tone, facilitating a smoother and more polished writing experience.

Enhanced Writing Assistance

AI writing assistants offer real-time suggestions for grammar, style, and tone, facilitating a smoother and more polished writing experience.

Enhanced Book Presentation

AI makes designing the book easier with available and readiness of template

Enhanced Writing Assistance

Saving valuable time and energy for editing the design for marketing strategy. AI helped in mocking up the final version of the book design for an interesting setup.

THE BENEFIT OF

AI TOOLS

Useful for title selection, topic searching, and framework of writing.

IDEA SUGGESTIONS AND DEVELOPMENTS

ChatGPT

Overcoming Writer's Block

- Engaging in a conversation with ChatGPT can help authors overcome writer's block by simply generating free-flowing ideas, writers may find inspiration to move forward in their creative process.

Idea Generation

- ChatGPT can assist authors in brainstorming ideas for characters, plotlines, settings, and themes. Writers may find creative sparks and unique concepts for their books.

The model can provide suggestions and generate contents, but the final decisions should be made by the author based on their objectives for the book.

Word

Claude

perplexity

Elicit

typeset

consensus

Useful to construct writing process.

WRITE SMOOTHLY

Receive constructive feedback from AI tools based on readability, pacing, and other key elements, leading to a more refined and compelling manuscript.

Useful for proofreading that improve writing contents.

EDITING AND PROOOFREADING

QuillBot

wordtune

grammarly

PARAPHRASER

Grammar Correction and Ensure for Clarity.

- Proofreading ensures the correction of grammatical errors, punctuation mistakes, and issues with sentence structure. This clarity enhances the overall readability of the book, preventing distractions caused by language errors and allowing the reader to focus on the content.

Style and Formatting.

- Proofreading guarantees consistency in writing style and adherence to formatting guidelines. A polished manuscript with a uniform style and professional appearance reflects positively on the author's commitment to delivering a high-quality product. Consistency extends to tone, voice, and visual elements, creating a cohesive reading experience.

THE BENEFIT OF AI TOOLS

Useful for designing.

IDEA FOR DESIGNING

Midjourney

Leonardo.Ai

Lexica
The Stable Diffusion search engine

Imagine

AI ART/IMAGE GENERATOR

It is an AI-powered tool that takes a text prompt, processes it, and creates an image that best matches the description given in the text prompt. You can try out suggested prompts, upload an initial image, or sketch something to create an illustration. AI image generators are trained on millions and millions of photos and have learned to identify things by way of actual existing photos created by real people.

Discord

SHARING EXPERTISE - ANIMATE

Discord is an instant messaging and VoIP social platform that allows communication and exchanging voice calls, video calls, text messaging, media, and image files. Communication can be private in virtual communities called "servers". The server for Midjourney reached over 15 million members, making it the largest server on Discord for sharing of images.

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ANIMATED GIFS MADE EASY

VIDEO TO GIF CONVERTER

This online video converter you to upload your mp4, avi, WebM, flv, WMV, and many other popular types of video and rich media files to turn them into high-quality animated GIFs. objects

Media.io fotor

WATERMARK REMOVER AND FOTO EDITOR

Easily remove any watermark from the video for free. Fast get rid of video logos, texts, stamps, or other distractive objects

MockCity

SMARTMOCKUPS

Creative MARKET

Useful for publishing and marketing.

PUBLISH EASIER WITH INTERESTING ADS

MOCKUP GENERATOR

AI mockups enable you to create stunning high-resolution mockups right inside your browser within one interface across multiple devices to present the book.

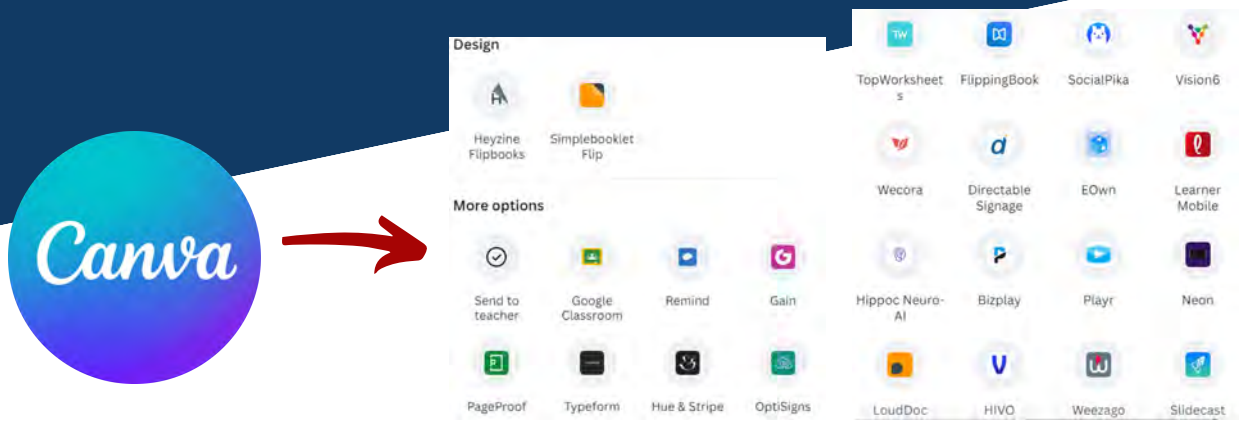
THE BENEFIT OF

AI TOOLS

EXAMPLES OF IMAGES GENERATED FROM AI TOOL S

Create images and animated them with sounds

[CLICK THIS LINK FOR AN ONLINE EXPERINCE OF THE FLIPBOOK]



DESIGNING THE MAIN BODY OF THE BOOK AND CONVERTING IT INTO OTHER PLATFORMS.
Canva is an online graphic design platform that creates social media posts, videos, presentations, slides, posters, art, drawings, and many other visual assets — and a wide range of customizable templates, royalty-free images, and AI features are provided to help design the book. It has many features such as a video editor, background removal tool, and lined to many apps that can convert writing book experience into an interesting platform.

MOCKUP EXAMPLES OF USING AI TOOL IN WRITING, PUBLISHING OR MARKETING THE BOOK.

FRONT PAGE

BACK PAGE

CLICK THIS LINK FOR AN ONLINE EXPERINCE OF THE FLIPBOOK

APPLY THE ISBN/ISSN ATAU EISBN/EISSN FOR THE BOOK FROM NATIONAL LIBRARY OF MALAYSIA

WRITE A BOOK USING AI TOOLS

"Writing a Book with AI Tools" is a must-have resource that guides authors through the novel combination of human creativity and artificial intelligence in the writing process. The book introduces readers to the ground-breaking ways in which AI tools can be used at every stage of the book creation process, from conceptualization to publication. The guide digs into the tremendous impact AI has on idea generation, content planning, writing support, data-driven editing, and strategic decision-making in the publishing realm by studying the synergy between authors and cutting-edge technology. Aspiring writers will get practical insights and tactics for smoothly incorporating AI into their writing experience, thereby improving their productivity, creativity, and manuscript quality.

Readers are invited to engage on a journey in which the traditional boundaries of authorship are stretched by the power of artificial intelligence. The book not only explains the complex environment of artificial intelligence, but it also equips writers to properly use these technologies. "Writing a Book with AI Tools" claims to be a comprehensive resource for authors wanting to traverse the developing environment of modern literature, giving them with the knowledge and skills to embrace the future of writing.

EXAMPLES OF SUMMARY USING AI TOOL IN WRITING THE BOOK.

IMAGES GENERATED FROM AI TOOLS

Price:
East Malaysia: RM 25.00
West Malaysia: RM30.00

ISBN 817525766-0

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Regulatory Frameworks for Artificial Intelligence Development and Deployment

Written By:

Dr. Yew Sheng Qian

Senior Lecturer in Public Health,
Department of Public Health Medicine,
National University of Malaysia (UKM)

The rapid development of artificial intelligence (AI) has not only led to revolutionary changes across various industries but has also given rise to new challenges in security and regulation.

As AI technology becomes more and more popular in healthcare and clinical trials, legal and compliance issues are becoming increasingly important.

Currently, there is a lack of a unified AI regulatory framework globally, making it complicated for multinational companies and research institutions to navigate compliance issues [1].

1) Regulatory Challenges of AI

Data Security and Privacy

- AI models often require a large amount of personal, sensitive data for training and operation, significantly increasing the risk of data leakage and privacy infringement.

Ethical and Social Biases

- If the training data contains biases, AI models are likely to inherit and amplify these biases, leading to unfair or even discriminatory decisions in application.

Cross-border Legal Challenges

- AI often operate across borders, and legal frameworks can vary significantly between countries.
- Harmonising regulations and ensuring interoperability is a complex challenge for legislators.

Accountability and Liability

- Determining responsibility and liability when AI systems cause harm or make incorrect decisions is challenging.
- Legislators need to establish frameworks that define liability and accountability in AI-related incidents.

2) WHO's 6 Principals on AI Regulation

The World Health Organization (WHO) published 6 principles that governments and regulatory authorities can follow to develop new guidance or adapt existing guidance on AI at national or regional levels [2]:

Transparency and Documentation

- Be transparent about the source, nature, and quality of the data used for training AI models.
- Maintain detailed documentation about the dataset, including data collection methods, preprocessing steps, and any biases present.

Risk Management

- Identify, assess, and mitigate potential challenges and negative impacts associated with AI systems.
- Cybersecurity threats must be comprehensively addressed.

External Validation of Data

- Use external datasets that are different from the one used for training and validation.
- This helps assess the model's ability to generalise across diverse data sources.

Commitment to Data Quality

- Rigorously evaluate pre-release systems to ensure the systems do not amplify biases and errors.

Emphasis on Data Privacy

- Implement strong encryption measures to protect data during transmission and storage.
- Conduct regular privacy audits to assess compliance with data protection policies and regulations.

Encourage Collaboration

- Foster collaboration between regulatory bodies, patients, healthcare professionals, industry representatives, and government partners.

3) AI Regulations Around the World

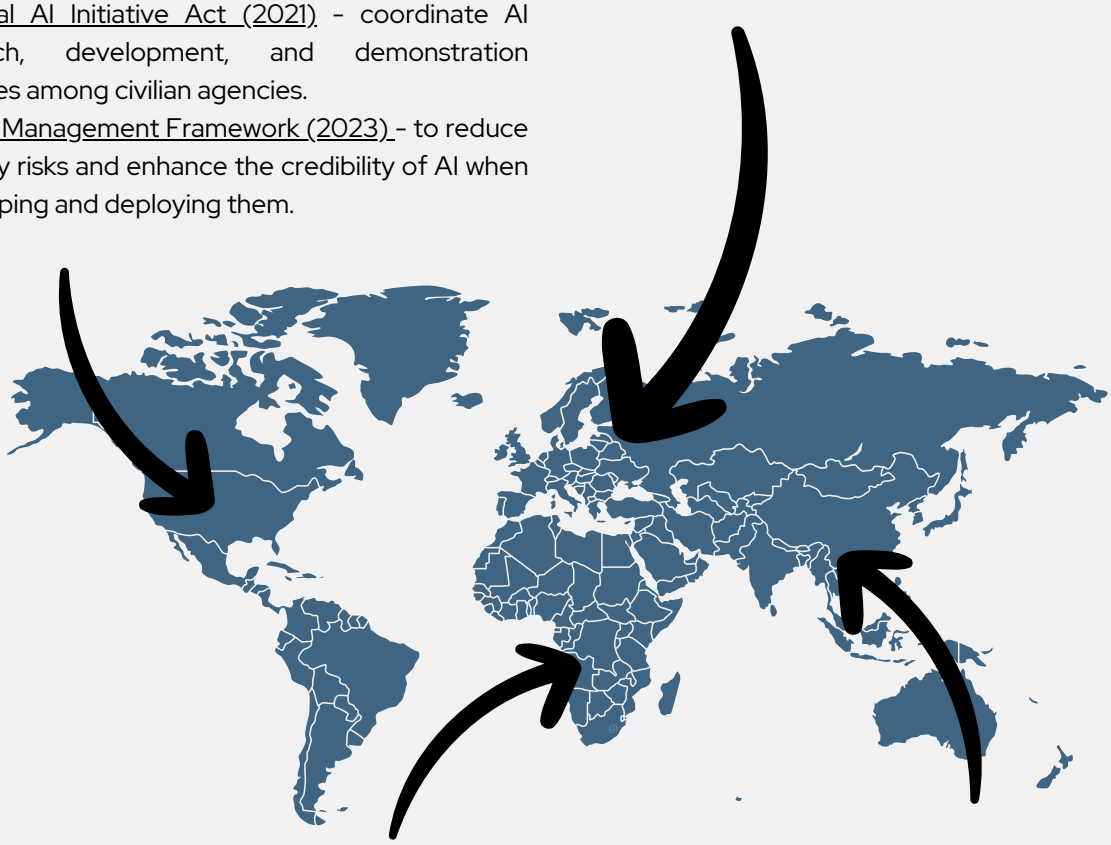
Countries around the world have gradually started implementing regulations on AI [3].

United States

- AI Bill of Rights (2022) - to protect people's personal data and limit surveillance.
- AI in Government Act (2020) - to ensure that the use of AI across the government is effective, ethical, and accountable by providing resources and guidance to federal agencies.
- National AI Initiative Act (2021) - coordinate AI research, development, and demonstration activities among civilian agencies.
- AI Risk Management Framework (2023) - to reduce security risks and enhance the credibility of AI when developing and deploying them.

European Union

- General Data Protection Regulation (GDPR) 2016 - to strengthen and unify data protection for individuals within the European Union.
- European Data Governance Act (DGA) 2023 – to facilitate data sharing across borders.



Nigeria

- National Information Technology Development Agency (NITDA) Act 2007 - mandates the planning, research, development, standardisation, application, coordination, monitoring, evaluation and regulation of information technology.

Australia

- No regulation on AI but adopted an AI Ethics Framework (2022), which is a set of voluntary ethics principles to ensure AI applications are safe, secure, and reliable.

China

- Provisions on the Administration of Algorithm-generated Recommendations for Internet Information Services (2021) - to standardise the use of algorithm recommendation technologies when providing online services within China.
- Provisions on the Administration of Deep Synthesis in Internet Information Services (2022) – mandate providers and technical supporters of deep synthesis services to obtain consent from individuals whose bio-information are used.
- Interim Measures for the Management of Generative Artificial Intelligence Services (2023) - to regulate a broader range of generative AI .

4) Conclusion

In the forefront of the AI field, regions like North America, Europe, and Asia are swiftly advancing and refining their AI regulation frameworks. However, many developing countries are still in the early stages of AI regulation, facing the primary challenge of finding a balance between technological innovation and considerations of ethics and safety. While some countries have initiated the development of basic AI strategies and policies, most have yet to establish a comprehensive regulatory framework.

Apart from domestic regulatory measures, international organisations such as the United Nations, the World Economic Forum, and the Organization for Economic Co-operation and Development also play a crucial role in actively promoting global cooperation in AI regulation. These organisations primarily focus on assessing the impact of AI on the global economy, society, and security, aiming to construct a fair, transparent, and sustainable global AI ecosystem.

Looking forward, global regulations governing AI will continue to progress and enhance to keep pace with the rapid development and widespread application of AI technology. Simultaneously, the regulatory process must strike a delicate balance among various considerations, including technological innovation, privacy protection, ethics, and social responsibility, to ensure the sustainable development and responsible application of AI technology.

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Further Readings

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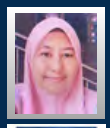
Understanding EVIDENCE-BASED RESEARCH



Summarize by Salwana Ahmad & Chew BH

INTRODUCTION

Access the source of this article here: evbres Evidence-Based Research

The use of previous research findings Numerous studies demonstrate that while planning to begin, fund, regulate, sponsor, or publish the findings of new studies, researchers, research funders, regulators, sponsors, and publishers of research often overlook to use of previous research. It is unethical, unscientific, and wasteful to do research without first carefully examining the evidence of what is already known, especially when the research includes humans or animals.

DEFINITION

'The use of prior research in a **systematic and transparent way** to inform a new study so that it is answering questions that matter in a **valid, efficient and accessible manner**'

ANSWERS TO THE CHALLANGES

CHALLENGES

- Studies published in the journal can not be replicated, never published, redundant and the quality is poor.
- Consequences, the trust and confidence in science is declining.

CONCEPT OF EBR FOR ENSURING VALUABLE RESEARCH

Use scientific methods to:

1. Evaluate performance of research.
2. Improve the way research is conducted.
3. Use scientific methods to monitor research practice over time.

APPROACH TO ACHIEVE AIMS

- ... the use of a systematic and transparent approach when justifying and designing a new study
- ... the use of a systematic and transparent approach when placing new results in the context of existing evidence
- ... more efficient production, updating and dissemination of systematic reviews

THE DIFFERENCE

To formulate the research questions, traditionally they use their scientific environment and context, personal interests and ambitions, and the knowledge base (underpinning epidemiological and basic science research).

"The EBR approach suggests that a systematic and transparent approach should be followed to explicitly use all earlier studies and to consider end user perspectives."

Adapted from Robinson et al., (2020)

THE EVIDENCE-BASED RESEARCH NETWORK

'Evidence-Based Research Network (The EBRNetwork) was established in Bergen, Norway in December 2014 with initial partners from Australia, Canada, Denmark, the Netherlands, Norway, the UK, and the USA to address the problem related to the EBR. Their aims are to reduce waste in research by promoting the:

- No new studies without prior systematic review of existing evidence.
- Efficient production, updating, and dissemination of systematic reviews.

A NEW WORKING DEFINITION OF A SYSTEMATIC REVIEW:

'The EBRNetwork has suggested:

"a systematic review is a structured and preplanned synthesis of original studies that consists of predefined research questions, inclusion criteria, search methods, selection procedures, quality assessment, data extraction, and data analysis. No original research study should be deliberately excluded without explanation, and the results from each study should justify the conclusion."

Members of the EBRNetwork published an analysis paper titled "Towards evidence-based research (Lund et al., 2016) in the BMJ in 2016 that discussed EBR and its role in minimizing research waste. The article included the EBR Statement, which outlined the various stakeholders' roles in achieving EBR's goals, as well as an EBR flow chart to explain the process as in Figure 1 and Figure 2.

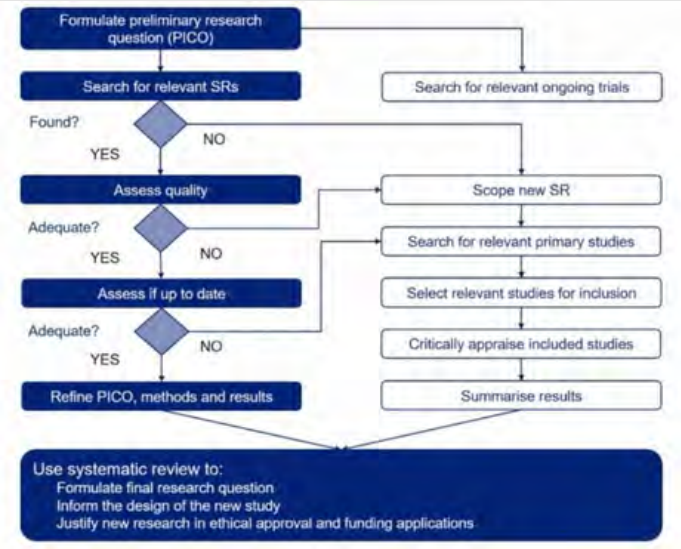


Figure 1 shows the flow chart for EBR adapted from Lund et al., (2016) as shown in the article.

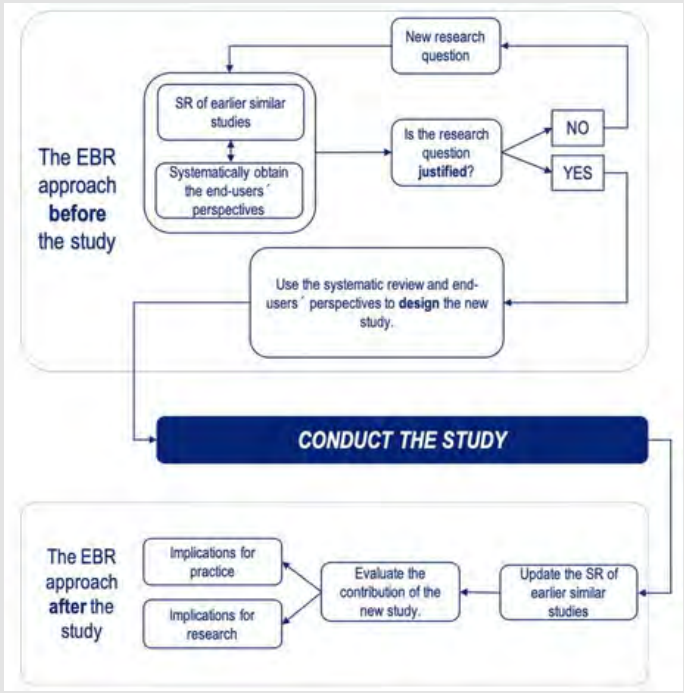


Figure 2 shows the EBR Approach adapted from Robinson KA et al. (2020) that explain the context and importance of EBR What Evidence-Based Research.

JCE
JOURNAL OF CLINICAL EPIDEMIOLOGY
Supports Open Access

A series of Evidence-Based Research articles was published in October 2020, in the Journal of Clinical Epidemiology to further explain the concept and examples of the EBR in use. Click the links to further read the articles:

- 1-What Evidence-Based Research is and why is it important? (Robinson et al., 2021)
- 2-Using an Evidence-Based Research approach before a new study is conducted to ensure value (Lund et al., 2021)
- 3-Using an Evidence-Based Research approach to place your results into context after the study is performed to ensure the usefulness of the conclusion (Lund et al., 2021)

HIGHLIGHT OF THE STUDY FINDINGS

Finding 1: A study by Robinson and Goodman (2011) aimed to assess the extent to which reports of RCTs cite prior trials studying the same interventions. The study included 227 meta-analyses comprising 1523 trials published from 1963 to 2004 and concluded that a median of 2 trials was cited, regardless of the number of prior trials that had been conducted.

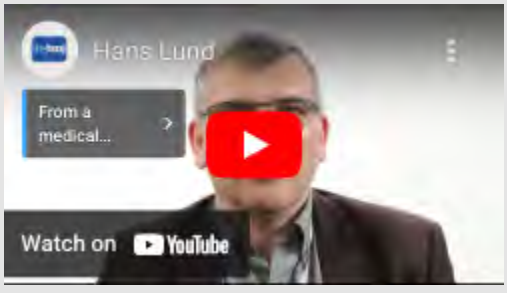
Finding 2: In a descriptive cross-sectional analysis of 622 RCTs published between 2014 and 2016, Egelking et al., 2018 tried to find whether RCTs published in anaesthesiology journals mentioned previous SRs as a rationale for conducting trials and for discussing results. The study found that only 20% explicitly mentioned an SR as justification for the new study and almost half (44%) did not cite a single SR

Finding 3: A study by **Burkhe et al., (2015)** aimed to determine if there were any changes in the referencing or use of systematic reviews based on the reasons why trials did not reference a systematic review and included a more recent cohort of trials funded in 2013. In the first cohort (2006-2008), 42 of 46 (89%) referred to an SR, while 34 of 34 (100%) referred to an SR in the second cohort (2013). However, very few studies (>90% in both cohorts) employed SRs to inform the design of their new trial in addition to justifying the treatment comparison.

Finding 4: Repeated studies by Clarke and Hopewell (1998;2002;2007;2010) found that RCTs published in the month of May in the five highest-ranking medical journals (JAMA; BMJ; NEJM; Lancet and Annals of Internal Medicine) almost never used an SR. An updated study by Clarke and Hopewell (2013) concluded that no improvement over time. Only 3% of RCTs contain an updated systematic review integrating their results and only 37% make any systematic attempt to place new results in context.

Summary: A systematic and transparent approach is rarely used when citing earlier similar trials, justifying new studies, designing new studies, and placing new results in the context of existing results.

MORE RESOURCES



Prof. Hans Lund spoke about the EBR. **CLICK HERE TO WATCH.**

A webinar "How to conduct EBR" presented by Hans Lund & Klara Brunnhuber. **CLICK HERE TO ACCESS.**

Introduction to evidence-based research from Caroline Blaine. **CLICK HERE TO ACCESS.**

References:

1. Robinson, K.A., Brunnhuber, K., Ciliska, D., Juhl, C.B., Christensen, R., & Lund, H. (2020). What Evidence-Based Research is and why is it important? *Journal of Clinical Epidemiology*.
2. Lund et al. (2016). BMJ. 2016 Oct 21;355:i5440. doi: 10.1136/bmj.i5440
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7. Bhurke, S., Cook, A., Tallant, A. et al. Using systematic reviews to inform NIHR HTA trial planning and design: a retrospective cohort. *BMC Med Res Methodol,* 15, 108 (2015). https://doi.org/10.1186/s12874-015-0102-2.
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9. Robinson, K. A., & Goodman, S. N. (2011). A systematic examination of the citation of prior research in reports of randomized, controlled trials. *Annals of Internal Medicine,* 154(1), 50–55. https://doi.org/10.7326/0003-4819-154-1-201101040-00007.

RESUME FOR RESEARCHERS

Summarised by:

Iman Hafizah
Research Officer, CRU

Résumé for Researchers is developed by the Royal Society, an independent scientific academy of the UK intended to help researchers to share their varied contributions to research in a consistent way and across a wide range of circumstances.

The four-module narrative section has a suggested total word limit of 1000 over two pages, with the individual deciding how to distribute that across the modules. It has guidance on what could be included in each module, but the individual decides what information to include.

To get the template of the suggested structure:

Click here to DOWNLOAD

The Resume for Researchers Structure

Personal details

Provide your personal details, your education, key qualifications and relevant positions you have held.

Module 1 - How have you contributed to the generation of knowledge?

This module allows you to showcase your contributions to idea generation and hypothesis development, emphasizing key skills. It highlights effective communication of ideas, research results, funding, and awards. The inclusion of relevant outputs, such as data sets, software, publications, and products, is encouraged, with a focus on their significance in knowledge generation, and DOIs are specifically mentioned for reference.

Module 2 - How have you contributed to the development of individuals

This module serves to showcase your critical contributions to team success, encompassing project management, collaboration, and support for team members. It allows for the documentation of teaching activities, workshops, and mentoring across various educational levels, as well as support provided to both junior and senior colleagues. Additionally, it provides a platform to highlight your role in establishing collaborations, from institutional to international levels, and describes instances of strategic leadership in shaping the direction of a team, organization, company, or institution.

Module 3 - How have you contributed to the development of individuals

This module provides a platform to document your contributions to the research community, encompassing activities like editing, reviewing, committee work, and evaluating researchers and projects. It allows for the inclusion of organized events that benefit the research community and highlights efforts to enhance research integrity and culture. In addition, it serves to showcase appointments to positions of responsibility and recognition within your department, institution, or organization.

Module 4 - How have you contributed to broader society?

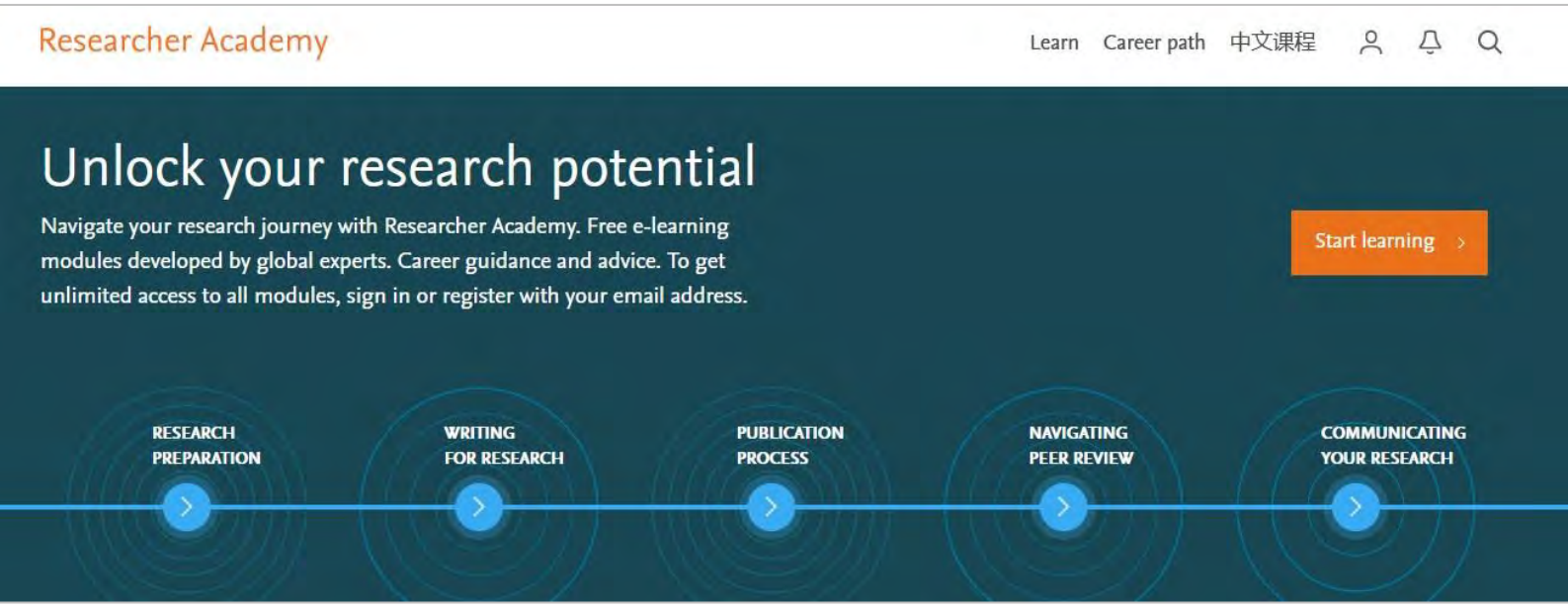
This module allows for the inclusion of examples showcasing societal engagement and knowledge exchange, involving interactions with industry, the private sector, the public sector, clients, and the general public. It provides a platform to highlight positive stakeholder feedback, the inclusion of patients in processes and clinical trials, and broader impacts across research, policy, practice, and business. Besides, it can document efforts to collaborate with specific societal or patient groups and to advise policymakers at local, national, or international levels, as well as communicate information through the press and on social media.

Personal statement

Provide a personal statement that reflects on your overarching goals and motivation for the activities in which you have been involved.

Additions

Mention career breaks, secondments, volunteering, part-time work and other relevant experience (including in time spent in different sectors) that might have affected your progression as a researcher.



To enroll in the free e-learning modules:

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ANNOUNCEMENTS

- MJH Series 23. 22nd December 2023. 10.30 – 11.45am.
- Research Colloquium series 5/23. 6 Dec 2023. 1400 - 1630.
- Expression of Interest Trans-disciplinary Project 2024
- 8th World Conference on Research Integrity (Hybrid), 2-5 June 2024, Athens, Greece.
- Introduction to Decentralized Clinical Trials (DCTs). An online course by the Association of Clinical Research Professionals (ACRP).
- Wellcome Trust Funding Opportunities
- Opportunities for collaborative research in Horizon Europe: Energy, Climate Action & Mobility

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META-JOURNAL HOUR

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Speaker

Ms. Iman Hafizah
Research Officer, CRU

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Series 5/2023

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Assessment and analysis of walking frame use based on the elderly experience in Klang Valley, Malaysia

Mr. Mohd Rizal Hussain
Principal Investigator
Medical Gerontology and Gerontechnology Laboratory,
Malaysian Research Institute on Ageing (MyAgeing)

Association Between Work Performance, Lifestyle Factors, Dietary Intake, and Body Weight Status Among Healthcare Professionals in Hospital Sultan Abdul Aziz Shah (HSAAS)
Presenter: Assyima Sabri

Assoc. Prof. Dr. Hazizi Abu Saad
Principal Investigator
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Expression of Interest
Trans-disciplinary Project 2024

All researchers who are interested to participate in trans-disciplinary project are invited to fill-up the Google form [here] together with the project details in the presentation slide [here].

DEADLINE

15 DECEMBER 2023

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- Understand DCT tools and their possible implementation.

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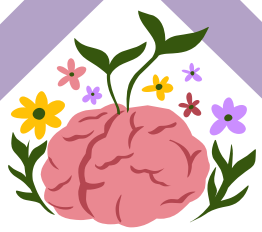

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