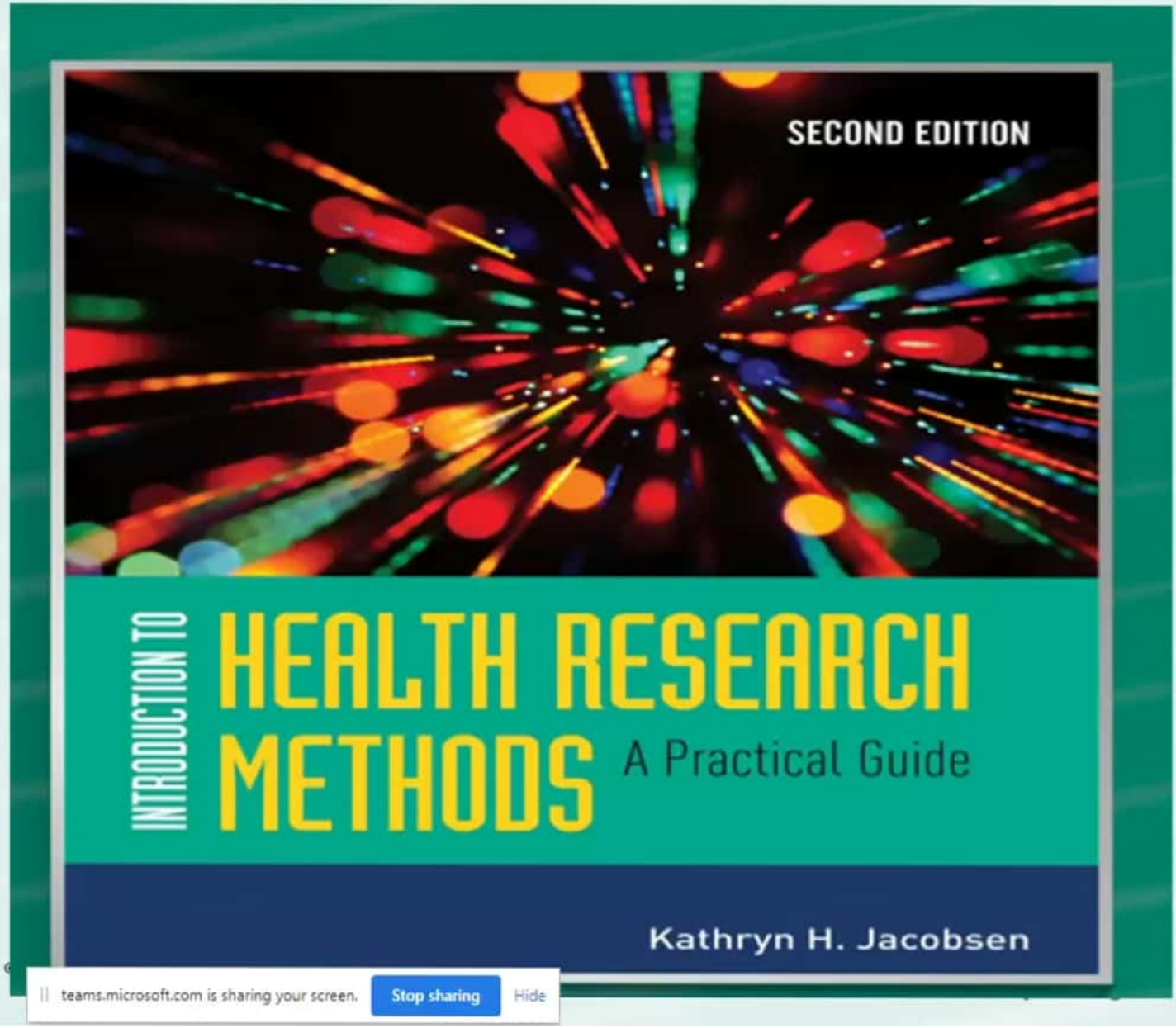
SCIENTIFIC MEDICAL RESEARCH

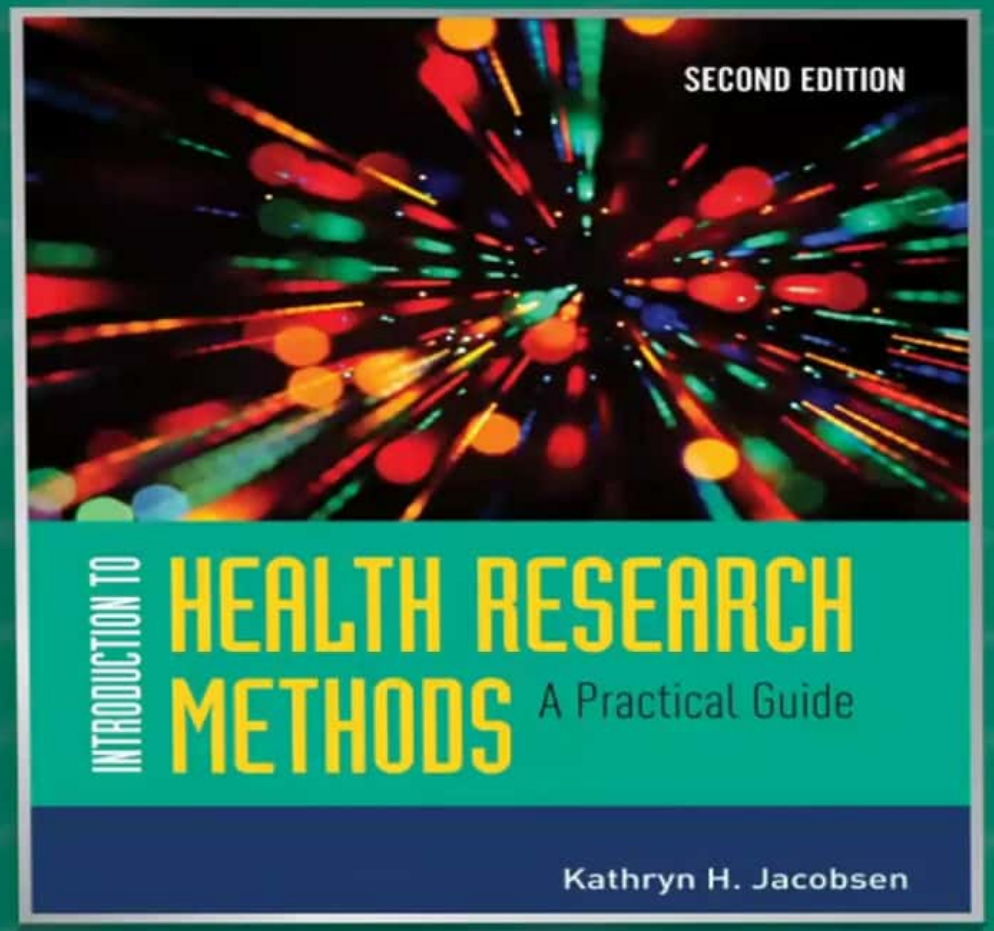
Week 1

Text Book



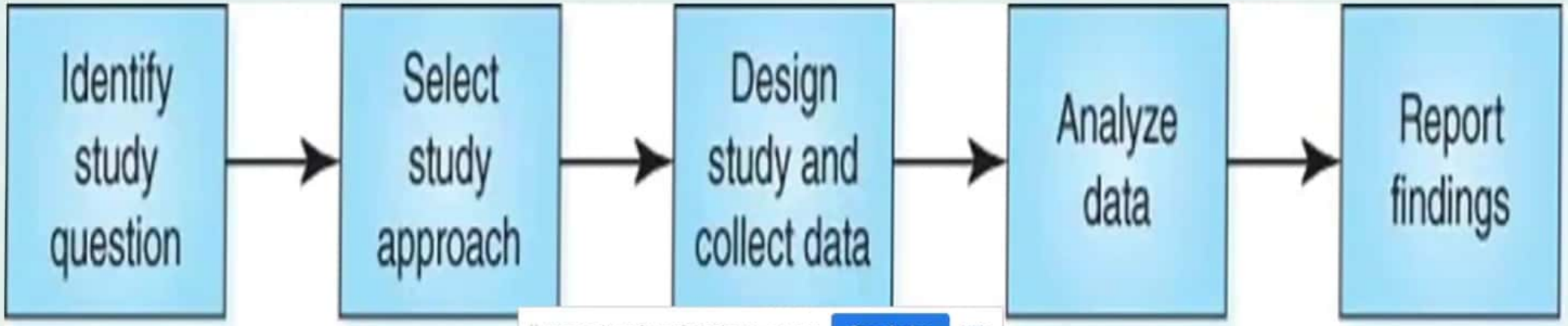
The Health Research Process

Chapter 1



1.1 The Research Process

- ***Research:*** the process of systematically & carefully investigating a subject in order to discover new insights about the world.
- **Five steps**



1.2 Health Research

- ***Health research*** examines a broad spectrum of biological, socioeconomic, environmental, and other factors that contribute to the presence or absence of physical, mental, and social health and well-being.
- ***Population health research*** involves humans as the unit of investigation.
- There is a distinction between routine practice activities & health research.

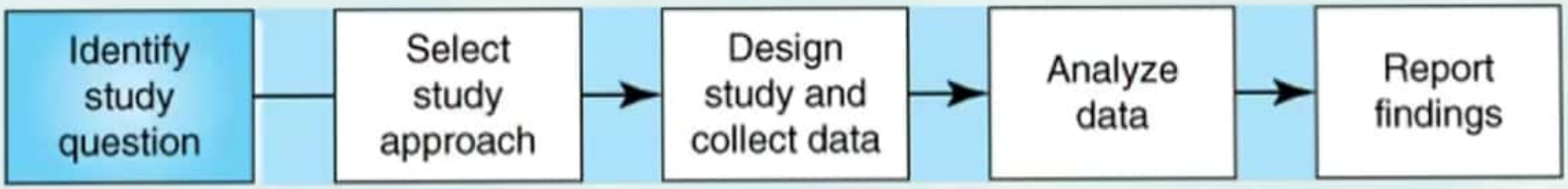
1.3 Health Research Purposes

1. Needs assessment (community health profiles)
2. Risk assessment (risk factors for disease)
3. Applied practice (clinical effectiveness)
4. Outcomes evaluation (impact of interventions)

1.4 Book Overview

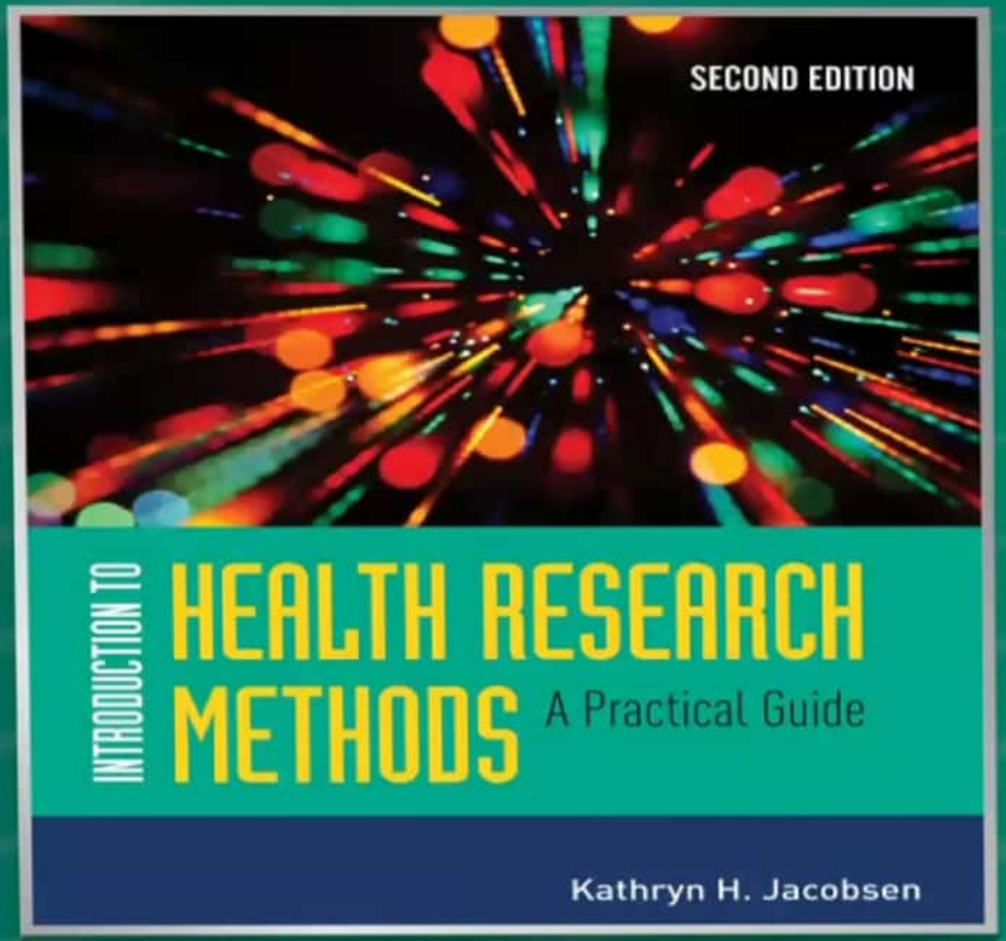
- Everyone can do meaningful research!
- The best way to learn about health research is to do real research.
- Consults experts

STEP 1



Selecting a General Topic

Chapter 2



2.1 Practical Questions

- Questions derived from clinical practice, community observations, and personal experience often point toward an unmet demand for needs assessments, program evaluations, and clinical effectiveness studies.
- A good research question ends in a question mark and is testable.

2.2 Brainstorming & Concept Mapping

- Use ***brainstorming*** to create a long list of possible research topics.
- Use ***concept mapping*** to identify central themes that might be worth exploring.

FIGURE 2-1 Brainstorming Questions

Area	Questions
Values	• What are my interests and personal values? • What research topics are personally meaningful? • Have some understudied conditions that I could explore significantly affected me, my family, my friends, or my patients/clients? • Have certain health issues sparked my passion because they reflect what I consider to be an injustice?
Skills	• What knowledge and skills do I already have?
Personal growth	• What new skills do I want to develop?
Connections	• What source populations and/or data sources might be available to me through professors, supervisors, colleagues, and other personal and professional contacts?
Job and/or course requirements	• What does my supervisor or professor want me to study?
Gaps in the literature	• What information is not currently available that would make a contribution to the discipline and/or to improving health practices or policies?

2.3 Keywords

- Use the ***MeSH database*** (Medical Subject Headings) to identify related ideas and to expand or narrow a theme.
- The MeSH dictionary is available from PubMed.org.

2.4 Exposure, Disease, Population (EDP)

- The "EDPs" form the basis for many research questions:
  "Is [exposure] related to [disease/outcome] in [population]?"

FIGURE 2-2 Examples of Types of Exposures

Socioeconomic Status	Health-Related Behaviors	Health Status	Environmental Exposures
• Income • Wealth • Educational level • Occupation • Age • Sex/gender • Race/ethnicity • Nationality • Immigration status • Marital status	• Dietary practices • Exercise habits • Alcohol use • Tobacco use • Sexual practices • Contraceptive use • Hygiene practices • Religious practices • Use of health care services	• Nutritional status • Immune status • Genetics • Stress • Anatomy and anatomical defects • Reproductive history • Comorbidities (existing health problems)	• Drinking water • Pollution • Radiation • Noise • Altitude • Humidity • Season • Natural disasters • Population density • Travel

FIGURE 2-3 Examples of Types of Diseases

Infectious and Parasitic Diseases	Noncommunicable Diseases (NCDs)	Neuropsychiatric Disorders	Injuries
• Candidiasis • Cholera • *Escherichia coli* • Hookworm • Malaria • Syphilis • Tuberculosis	• Asthma • Breast cancer • Cataracts • Diabetes • Hypertension • Osteoporosis • Stroke	• Alzheimer's disease and other dementias • Autism • Depressive disorders • Posttraumatic stress disorder • Schizophrenia	• Bone fractures • Burns • Crush injuries • Frostbite • Gunshot wounds • Near drownings • Poisonings

FIGURE 2-4 Examples of Types of Populations

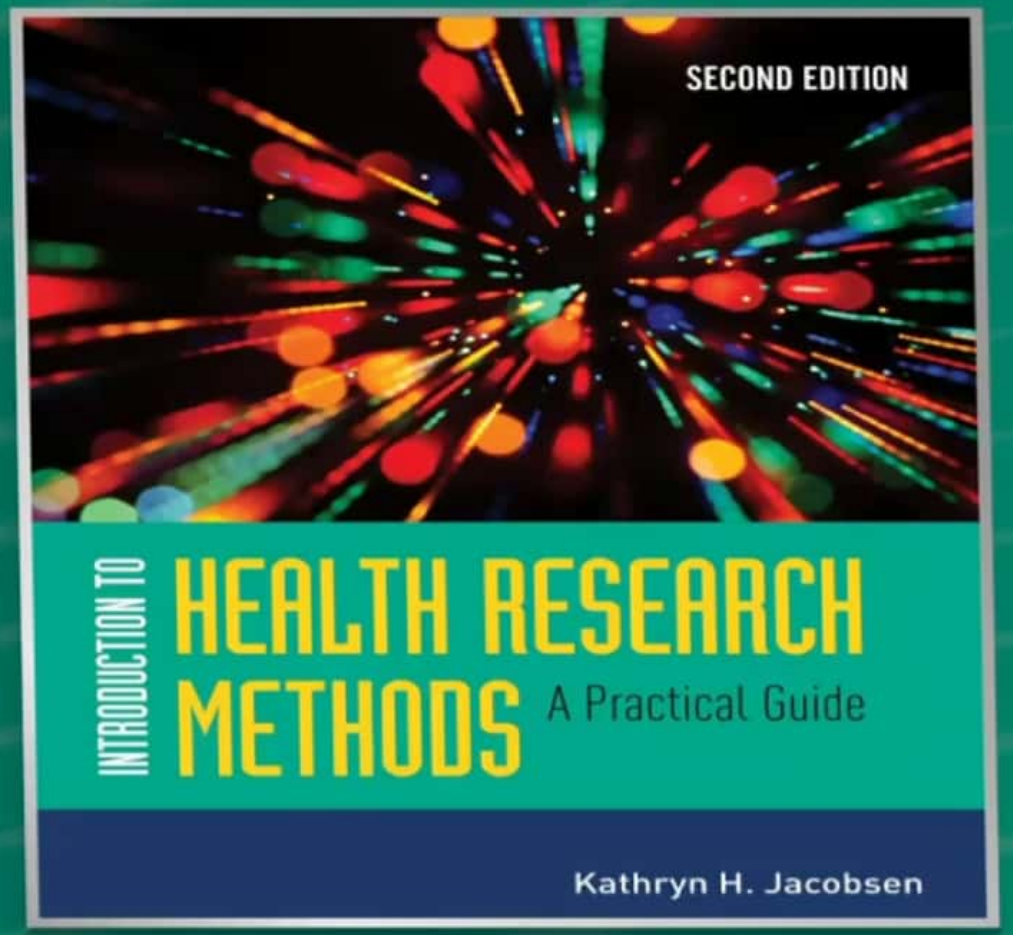
- Australian children younger than 5 years old
- Women living in rural Ontario
- Adults with diabetes
- Teachers with at least 10 years of classroom experience
- Individuals newly diagnosed with influenza at St. Mary's Hospital in Newcastle
- Nongovernmental organizations working on issues related to HIV/AIDS in Uganda

2.5 PICOT

- "PICOT" is often used for clinical research
  - *P*atient/*P*opulation
  - *I*ntervention
  - *C*omparison
  - *O*utcome
  - *T*imeframe

Reviewing the Literature

Chapter 3



3.1 Informal Sources

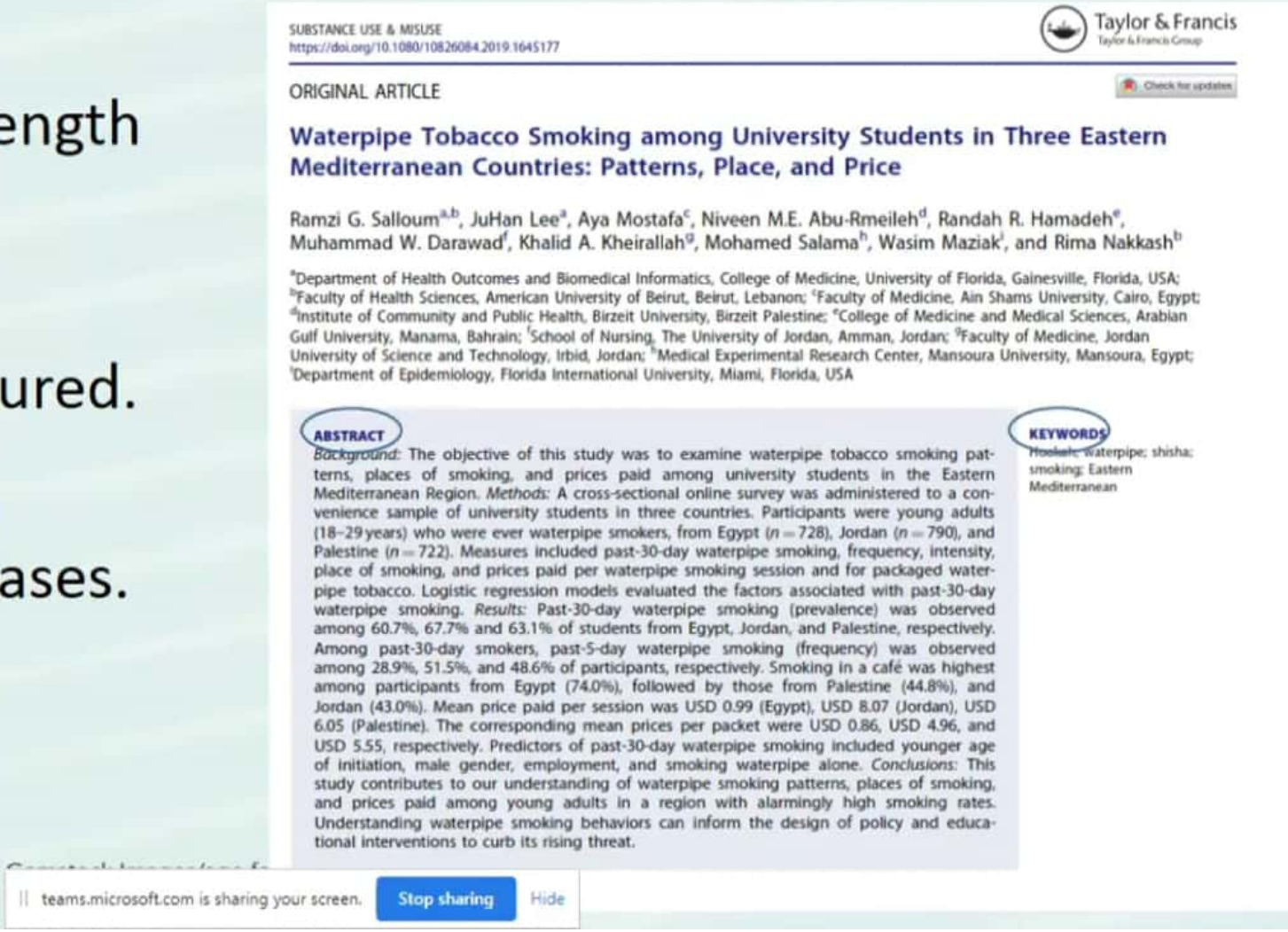
- Nontechnical information from trusted sources (e.g., CDC, WHO) can provide helpful background on a topic.
- Factsheets and other informal information are not part of the formal peer-reviewed scientific literature (Do not cite them in formal reports).

3.2 Statistical Reports

- World Bank world development indicators
- UN agency reports (*World Health Statistics*, *Human Development Report*, *State of the World's Children*)
- Annual reports from groups like the American Cancer Society and Population Reference Bureau
- Information from state and local health departments

3.3 Abstract Databases (1 of 4)

- *Abstract:* a paragraph-length summary of an article, chapter, or book.
- Structured Vs. Unstructured.
- Use keywords to search multiple abstract databases.



SUBSTANCE USE & MISUSE
https://doi.org/10.1080/10826084.2019.1645177

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ORIGINAL ARTICLE

Check for updates

Waterpipe Tobacco Smoking among University Students in Three Eastern Mediterranean Countries: Patterns, Place, and Price

Ramzi G. Salloum[a,b], JuHan Lee[a], Aya Mostafa[c], Niveen M.E. Abu-Rmeileh[d], Randah R. Hamadeh[e], Muhammad W. Darawad[f], Khalid A. Kheirallah[g], Mohamed Salama[h], Wasim Maziak[i], and Rima Nakkash[b]

[a]Department of Health Outcomes and Biomedical Informatics, College of Medicine, University of Florida, Gainesville, Florida, USA; [b]Faculty of Health Sciences, American University of Beirut, Beirut, Lebanon; [c]Faculty of Medicine, Ain Shams University, Cairo, Egypt; [d]Institute of Community and Public Health, Birzeit University, Birzeit Palestine; [e]College of Medicine and Medical Sciences, Arabian Gulf University, Manama, Bahrain; [f]School of Nursing, The University of Jordan, Amman, Jordan; [g]Faculty of Medicine, Jordan University of Science and Technology, Irbid, Jordan; [h]Medical Experimental Research Center, Mansoura University, Mansoura, Egypt; [i]Department of Epidemiology, Florida International University, Miami, Florida, USA

ABSTRACT

Background: The objective of this study was to examine waterpipe tobacco smoking patterns, places of smoking, and prices paid among university students in the Eastern Mediterranean Region. *Methods:* A cross-sectional online survey was administered to a convenience sample of university students in three countries. Participants were young adults (18–29 years) who were ever waterpipe smokers, from Egypt ($n = 728$), Jordan ($n = 790$), and Palestine ($n = 722$). Measures included past-30-day waterpipe smoking, frequency, intensity, place of smoking, and prices paid per waterpipe smoking session and for packaged waterpipe tobacco. Logistic regression models evaluated the factors associated with past-30-day waterpipe smoking. *Results:* Past-30-day waterpipe smoking (prevalence) was observed among 60.7%, 67.7% and 63.1% of students from Egypt, Jordan, and Palestine, respectively. Among past-30-day smokers, past-5-day waterpipe smoking (frequency) was observed among 28.9%, 51.5%, and 48.6% of participants, respectively. Smoking in a café was highest among participants from Egypt (74.0%), followed by those from Palestine (44.8%), and Jordan (43.0%). Mean price paid per session was USD 0.99 (Egypt), USD 8.07 (Jordan), USD 6.05 (Palestine). The corresponding mean prices per packet were USD 0.86, USD 4.96, and USD 5.55, respectively. Predictors of past-30-day waterpipe smoking included younger age of initiation, male gender, employment, and smoking waterpipe alone. *Conclusions:* This study contributes to our understanding of waterpipe smoking patterns, places of smoking, and prices paid among young adults in a region with alarmingly high smoking rates. Understanding waterpipe smoking behaviors can inform the design of policy and educational interventions to curb its rising threat.

KEYWORDS

Hookah; waterpipe; shisha; smoking; Eastern Mediterranean

Unstructured Abstract

Evaluating the Psychometric Properties of the Arabic Version of the Diabetes Distress Scale

Muhammad W. Darawad, PhD, RN; Sawsan Hammad, RN, MSN; Osama A. Samarkandi, PhD, RN; Ayman M. Hamdan-Mansour, PhD, RN; and Amani A. Khalil, PhD, RN

ABSTRACT

The current study evaluated the psychometric properties of the Arabic version of the Diabetes Distress Scale (DDS-A) among Arab patients with diabetes mellitus (DM) using a descriptive cross-sectional design. Participants' DDS-A total scores significantly correlated with depressive symptoms ($r = 0.288$, $p = 0.00$ **[Query #1: *p* value cannot equal 0.00. Please change to $p < 0.05$, $p < 0.01$, etc., throughout the abstract and article text.]**) as well as two subscales, emotional burden ($r = 0.276$, $p = 0.00$) and regimen distress ($r = 0.265$, $p = 0.00$). Participants' DDS-A scores had significant negative correlations with income, DM self-management, and knowledge ($r = -0.184$, $p = 0.008$; $r = -0.310$, $p = 0.00$; $r = -0.174$, $p = 0.003$, respectively) and a positive correlation with HbA1C level ($r = 0.153$, $p = 0.018$). Factor analysis revealed a four-factor solution that retained all items and explained a variance of 65.59%. Cronbach's alpha was 0.822 for the total scale and 0.778 to 0.881 for the subscales, indicating a high internal consistency. The DDS-A was found to be a psychometrically sound measure to evaluate DM-related distress among Arab patients. [*Journal of Psychosocial Nursing and Mental Health Services, xx*(x), xx-xx.]

Diabetes mellitus (DM) is a chronic disease that affects 366 million individuals worldwide, a number that is expected to rise by 2030 to 552 million (Whiting, Guariguata, Weil, & Shaw, 2011). Developing countries are at a higher risk for more DM cases, with a 69% increase in the number of adults with

3.3 Abstract Databases (2 of 4)

Examples of databases that are free to the public:

- PubMed
- European PubMed Central (PMC)
- SciELO & LILACS (Central and South America)
- AJOL (Africa)

3.3 Abstract Databases (3 of 4)

Examples of other (usually with subscription) databases:

- MEDLINE
- CINAHL
- Embase
- PsycINFO
- Web of Science
- EBSCO, JSTOR, Ovid, and ProQuest
- Company-specific databases (LWW, SAGE, T&F, Wiley, others)

3.3 Abstract Databases (4 of 4)

- Search with keywords or MeSH terms.
- Use Boolean operators: AND, OR, NOT.
- Carefully consider any limiters related to publication years or languages.

3.4 Full-Text Articles

Where to find free full-text PDFs:

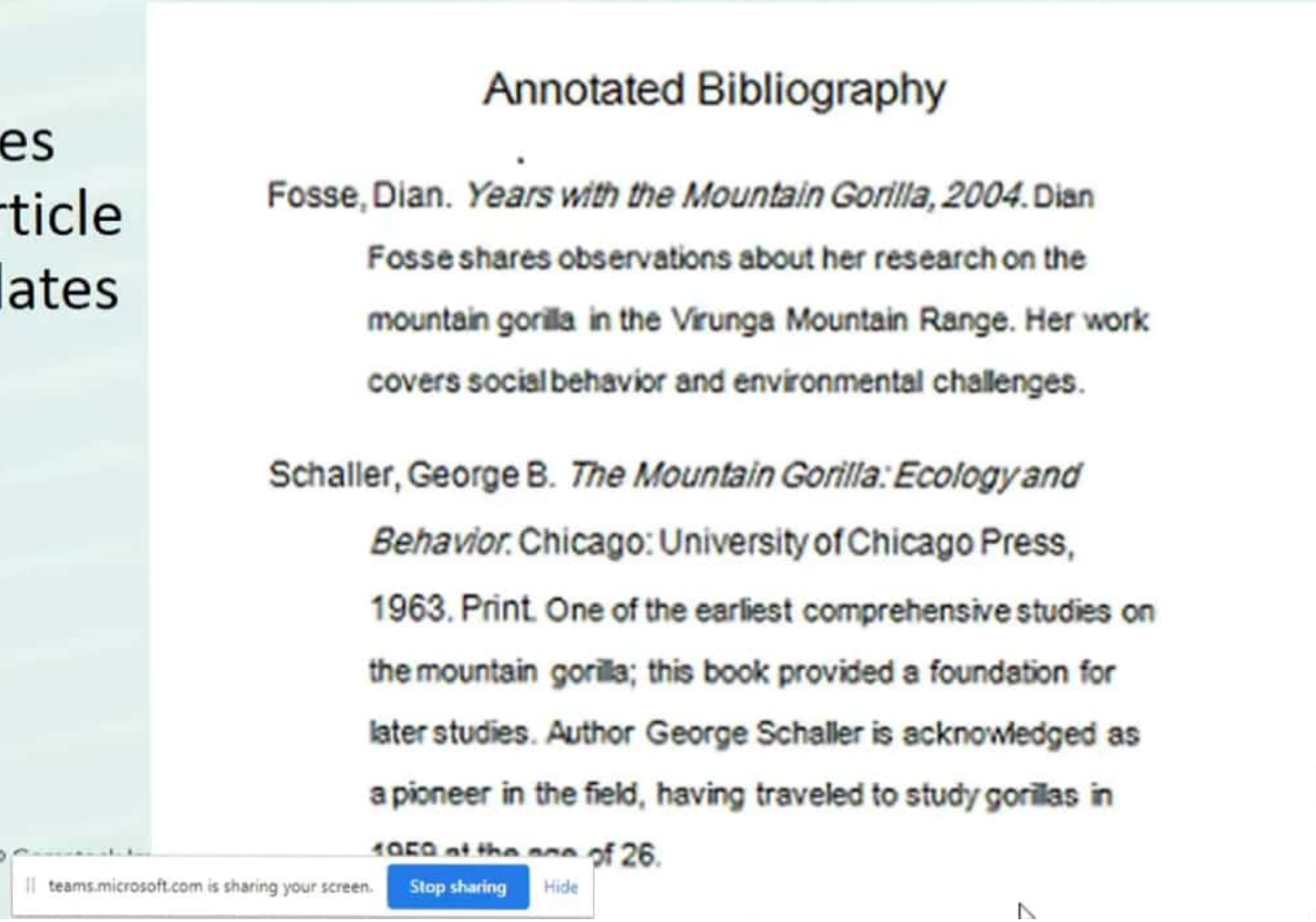
- Google Scholar and other search engines
- PubMed Central and other open access repositories
- Journal websites (if the article is open access)
- Library subscriptions (e-journals) or interlibrary loans when a journal is not in a library's collection
- E-mail the author to politely request a copy
- http://e-library (inside JU)

3.5 Critical Reading

- ***Internal validity***: How well was the study designed, conducted, interpreted, and reported?
- ***External validity (generalizability)***: How likely is it that the results of this study apply to other populations?

3.6 Annotated Bibliographies

- Annotated bibliographies briefly summarize an article or report and how it relates to the proposed new project.



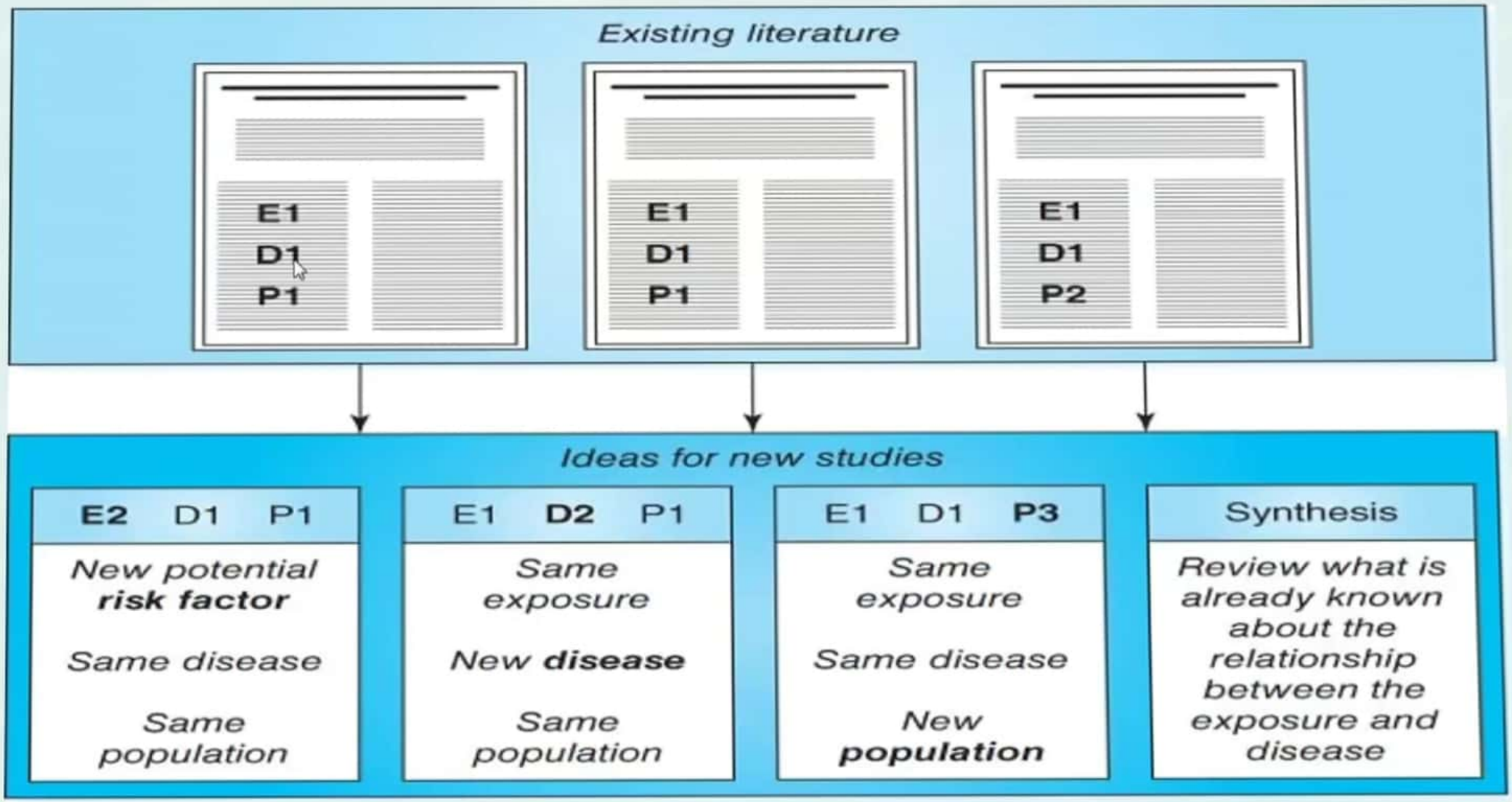
Annotated Bibliography

Fosse, Dian. *Years with the Mountain Gorilla, 2004.* Dian Fosse shares observations about her research on the mountain gorilla in the Virunga Mountain Range. Her work covers social behavior and environmental challenges.

Schaller, George B. *The Mountain Gorilla: Ecology and Behavior.* Chicago: University of Chicago Press, 1963. Print. One of the earliest comprehensive studies on the mountain gorilla; this book provided a foundation for later studies. Author George Schaller is acknowledged as a pioneer in the field, having traveled to study gorillas in 1959 at the age of 26.

3.7 What Makes Research Original?

- For a research project to be considered original, it needs to have only one substantive difference from previous work (a new exposure, a new disease/outcome, a new population, or a new perspective).



The End
Good Luck