Title of project:

Healthcare professionals as study participants: a scoping review

Course title: PHPR 896b

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**ABSTRACT**

**Specific Aims** To conduct a scoping review of studies involving healthcare professionals as study subjects and to describe the methods used, identify the topics researched, and describe the rationale and limitations of using healthcare professionals as subjects.

**Methods** The study was a scoping review of research utilizing health professionals as study subjects. A comprehensive literature search was conducted in several databases. Two investigators independently screened studies, collected data, and met to resolve discrepancies.

**Main Results** Sixty-five studies met the eligibility criteria. Forty-six percent of the studies evaluated cardiovascular events, 25% evaluated cancer, 9% examined ophthalmic events, 5% examined cognitive issues, and 17% miscellaneous topics. Of the 65 studies, 88% were prospective cohort studies. Questionnaires were utilized as the data collection method in 59 studies (91%). Physicians were the primary study subject in 30 studies (46%) and nurses in 20 studies (31%). No study included in the sample identified pharmacists as study subjects. A total of 41 studies (63%) did not list rationales or limitations to utilizing health professionals as subjects. Of the 24 studies that did discuss rationales and limitations, the most frequently cited advantage was reliable self-reporting (38%). The most common limitation to generalizability was high socioeconomic status.

**Conclusions** Questionnaires were the most common method used to collect data. Physicians were the most often studied health professional. High reliability of data reporting was a common rationale in using health professionals as subjects. The lack of studies utilizing pharmacists as subjects demonstrates an opportunity that should be further evaluated.
Healthcare professionals as study participants: a scoping review

INTRODUCTION

Healthcare professionals are a unique group of individuals not often utilized as the subject of research. Instead, they are often called upon to provide insight and expertise regarding the topics of the research. However, due to their education and knowledge, it can be advantageous for investigators to focus on healthcare professionals as participants.

There are notable long-term studies that use healthcare professionals as their subjects, including the Physicians’ Health Study, the Nurses’ Health Study, and the Health Professionals Follow-Up Study. Investigators from these studies agree that focusing on people in the healthcare profession provides unique advantages to their research. Investigators in the Physicians’ Health Study explained that physicians are more likely to accurately report their health status and medical histories, as well as identify side effects.\(^1\) Investigators from the Nurses’ Health Study hypothesized that because of the education nurses had, they would also be able to accurately answer more technical questionnaires as well as participate long term.\(^2\) Finally, investigators from the Health Professionals Follow-Up Study anticipated that the health professionals would be more motivated to participate long term and understand the importance of accurately answering survey questions.\(^3\) Investigators from all of these studies believe that health professionals would be more willing to commit to participating in a study as well as provide them with accurate information.

A literature review has shown few studies have been published with pharmacists as participants. The purpose of this study is to conduct a scoping review of studies involving healthcare professionals as study subjects and to describe the methods used, identify the topics researched, and to describe the rationale and limitations of using healthcare professionals as subjects.

METHODS
**Design:** This study used a scoping review design. Arksey and O’Malley define the purpose of a scoping review as: “to map rapidly the key concepts underpinning a research area and the main sources and types of evidence available.” While systematic reviews are guided by “highly focused” research questions requiring specific study designs, scoping reviews instead are guided by the need to identify all relevant literature regardless of the study design used. The scoping review framework includes identifying a research question, identifying relevant studies, selecting studies, charting data, and summarizing and reporting the results.

**Eligibility Criteria:** To be included in the scoping review, a study must have included doctors, nurses, or pharmacists as the subjects and must have been written in English. The studies must have also tested a generalizable hypothesis with the purpose of developing new knowledge that can be applied broadly to other groups or conditions and not concern a phenomenon specific to doctors, pharmacists, or nurses. Studies were excluded if doctors, nurses, or pharmacists were not subjects of the study, the study was specific to health professionals or was not generalizable, the study was non-English, or if the study was a case study, commentary, or editorial.

**Measures:** Data were collected from all included studies utilizing a data collection form. The descriptive variables and demographic variables collected included healthcare professional type and quantity, source of population, method of recruitment, study design, data collection methods, research topics, response rate, rationale for using healthcare providers, and limitations to using health care providers as study subjects.

**Data Collection:** Two investigators independently screened studies for inclusion and met to resolve any differences in interpretation. The investigators then used the data extraction form to collect data from eligible studies. The investigators met to resolve any differences in interpretation of the data through consensus. A workgroup on the college server was used, allowing all investigators to have access to documents being used. Refworks was used to store the results of literature searches.

**Data analysis:** To compare methodology of studies with health professionals as the subjects, a table was constructed to group studies by profession and type of method used. Frequencies and
percentages for types of methods used for each profession were calculated. To compare rationale for using health professionals as the subjects, a table was constructed to group studies by type of rationale and profession. Frequencies and percentages were calculated for rationale.

The descriptive variables were summarized in table format and included source population, inclusion criteria, purpose, study design, recruitment/data collection methods, response rate, age, gender, and outcomes. Categorical variables will be analyzed by calculating frequencies and percentages.

RESULTS

The studies included in the scoping review are listed in Appendix C. The descriptive characteristics of the studies identified to be included in the scoping review are shown in Table 1. Prospective cohort studies were the most common study design (88%), while 11% were randomized controlled trials. Cardiovascular disease was commonly researched in the studies (46%). Cardiovascular disease included the incidence of myocardial infarction, cardiovascular disease, coronary heart disease, and sudden cardiac death. The second most commonly researched topic was found to be cancer. The majority of the studies looked at the incidence of disease as a result of specific lifestyle factors or supplements used by the study subjects. Physicians were the most common type of health care professional studied (46%) followed by nurses (31%). Another 31% of study subjects were non-specified healthcare providers. Finally, data collection was most often completed through questionnaires (91%).

Rationales for the utilization of healthcare professionals are demonstrated in table 2. A majority of studies (63%) included in the scoping review did not address rationales and/or limitations to using healthcare providers. On studies that did report on this topic, the most common advantage was reliable self reporting (38%). The most common limitation was the healthier lifestyle of healthcare providers that limits the generalizability of results to the public (29%).

DISCUSSION

This study came from looking further into the Nurses’ Health Study and the Physicians’ Health Study. These two studies are longitudinal studies that began with a single study population and the data
and population have since been used to examine various topics such as vitamin use and cancer. These studies led to the questions of why nurses and physicians were used as study subjects compared to the general population and what are the other types of health providers that have been used as study subjects.

The primary findings of this study provided insight into what type of healthcare providers are often studied, what topics they are being studied for, how data is often collected from them, and the advantages or disadvantages to focusing on this population. Doctors and nurses were the most commonly studied populations, which highlights the fact that other healthcare professionals are not being focused on as much. When focusing on a specific cohort such as healthcare professionals, utilizing questionnaires provides an easier way to contact this population. Prospective cohort studies were the most common type of study design.

The influence of previous studies using healthcare professionals was demonstrated in the scoping review. A large percentage of studies focused on cardiovascular disease as the topic. This finding is not very surprising, due to the Physicians’ Health Study. This study focused on the use of supplementation for the prevention of cardiovascular disease. The Physicians’ Health Study established a large cohort of physicians that was often used by many of the studies included in this scoping review. The use of an already established cohort may explain both the large number of studies examining physicians as well as the research topics. The frequency of the prospective cohort study design was again not surprising due to the fact that many of the studies included in the review utilized previously established cohorts from studies such as the Physicians’ Health Study and Nurses’ Health Study.

This study was unique in its subject matter. There were no other studies found that looked at healthcare providers as study subjects.

The findings from this scoping review have several implications for future studies contemplating this specific population as subjects. High reliability of reporting offers data collection that may be less biased. The finding of a lack of studies indicating pharmacists as subjects demonstrates a unique opportunity that should be further pursued. Future reviews may be able to compare results of specific topics across health care professional types and to the general population. They may also be able to find
more detailed reasons for using specific health care professional populations over other populations.

There were limitations to this study. The study design was a scoping review, and by nature a scoping review is a rapid collection of literature related to a given broad topic to accumulate as much evidence as possible. Compared to a traditional systematic review the scoping review is much less systematic in its way of literature collection. If the study had been a true systematic review, it would have taken much longer and the search terms would have been much more difficult to develop in order to encompass all that we aimed to include in our literature search. It is possible that all relevant studies weren’t found through the scoping review. Another limitation is that some of the studies that were initially included were excluded due to the language that they were written in. Only English written studies were included. Finally, a systematic sample of studies was used to collect a sample from the main cohort study websites instead of including all cited literature.

CONCLUSIONS

To collect data from healthcare professionals, questionnaires were found to be the most common method. Physicians, followed by nurses, were the healthcare professionals most often studied in the scoping review. The most common rationale reported for utilizing this population as study subjects was high reliability of data reporting. The lack of studies utilizing pharmacists as subjects demonstrates an opportunity that should be further evaluated.
REFERENCES


### Table 1: Descriptive Characteristics of Included Studies

<table>
<thead>
<tr>
<th></th>
<th>N (N=65)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Research Topic</strong></td>
<td></td>
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</tr>
<tr>
<td>Cardiovascular</td>
<td>29</td>
<td>45%</td>
</tr>
<tr>
<td>Cancer</td>
<td>16</td>
<td>25%</td>
</tr>
<tr>
<td>Optic</td>
<td>6</td>
<td>9%</td>
</tr>
<tr>
<td>Cognitive</td>
<td>3</td>
<td>5%</td>
</tr>
<tr>
<td>Other</td>
<td>11</td>
<td>17%</td>
</tr>
<tr>
<td><strong>Study Subjects (some studies utilized multiple types)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physicians</td>
<td>30</td>
<td>46%</td>
</tr>
<tr>
<td>Nurses</td>
<td>20</td>
<td>31%</td>
</tr>
<tr>
<td>Non-specified Healthcare professional</td>
<td>20</td>
<td>31%</td>
</tr>
<tr>
<td>Pharmacist</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td><strong>Study Design</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prospective Cohort Study</td>
<td>57</td>
<td>88%</td>
</tr>
<tr>
<td>Systematic review (Topic = multivitamin use)</td>
<td>1</td>
<td>2%</td>
</tr>
<tr>
<td>RCT</td>
<td>7</td>
<td>10%</td>
</tr>
<tr>
<td><strong>Data Collection Method</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Questionnaire</td>
<td>59</td>
<td>91%</td>
</tr>
<tr>
<td>Blood Sample</td>
<td>3</td>
<td>5%</td>
</tr>
<tr>
<td>Literature Search</td>
<td>3</td>
<td>5%</td>
</tr>
</tbody>
</table>
### Table 2: Rationale for using health care providers

<table>
<thead>
<tr>
<th>Rationale (Advantage and/or Disadvantage) Provided?</th>
<th>No</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>No</strong></td>
<td>41</td>
<td>24</td>
</tr>
<tr>
<td><strong>Yes</strong></td>
<td>63%</td>
<td>37%</td>
</tr>
<tr>
<td><strong>Advantages</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reliable self reporting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Similar health seeking behaviors compared to other groups d/t similar education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-adherence not as concerning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Limitations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High socioeconomic status</td>
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<td></td>
</tr>
<tr>
<td>Healthier lifestyle</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Low occupational physical activity</td>
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<td></td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td><strong>N = 24</strong></td>
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</tr>
<tr>
<td>9</td>
<td>38%</td>
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<td>1</td>
<td>4%</td>
</tr>
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<td>2</td>
<td>8%</td>
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<tr>
<td>6</td>
<td>12.5%</td>
</tr>
<tr>
<td>8</td>
<td>29%</td>
</tr>
<tr>
<td>1</td>
<td>4%</td>
</tr>
</tbody>
</table>
Appendix A: Study Inclusion Screening Tool

Number of publications involving health care professionals (non-student doctors, nurses and pharmacists): A systematic review

Date of review: _________________ Initial of reviewer: ______
Unique identifier (Refworks #): ______
Study Citation (1st author last name, date) ____________________________________________
______________________________________________________________________________

Review the abstract and answer the following questions for inclusion.
(If unable to determine the answers from the abstract or no abstract is available, use the full article for review.)

1. Are the study subjects doctors (MD, DO), nurses, or pharmacists (RPh, PharmD) (non-students)?
   Yes  No

2. Is it in English?
   Yes  No

3. Was the study done in the United States?
   Yes  No  If NO, what country? ___________________

If you answered “yes” to all three questions, the study will be included in the systematic review.
______________________________________________________________________________

If you answered “no” to any questions, note the reason(s) for exclusion below.
(check all that apply):
□ Editorial/Letter
□ Commentary
□ Case study
□ Non-English Study
□ Healthcare professionals other than doctors, nurses, or pharmacists are the subject

Date of team meeting: _________________

Decision: Include_______ Exclude_______ Arbitration Needed ________

Date of Arbitration: _________________

Decision: Include_______ Exclude_______
Appendix B: Data Extraction Form

1. Study ID No. ______________

2. First Author (date) ______________

3. Healthcare Professional Type (number of each type of participant):

<table>
<thead>
<tr>
<th>Doctor</th>
<th>Pharmacist</th>
<th>Nurse</th>
<th>Allied Health Professional</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
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</tr>
</tbody>
</table>

1. Source of Population: _______________________________________________

2. Method of recruitment: _______________________________________________
   a. Inclusion Criteria:
   a. Exclusion Criteria:

1. Number of Subjects: ___________ (intention to treat population)

2. Study Design (circle one): Descriptive RCT Cohort Cross-Sectional Other: ______________

3. Data Collection Methods (circle one): Survey Lab tests Other: ______________

4. Research Topic (Purpose of Study?): __________________________________________

5. Response Rate (Surveys): ______________ N/A

6. Rationale for using healthcare providers:

1. Limitations to using healthcare providers:

1. Duration of Study: ______________
Appendix C: Articles included in scoping review


15. Camargo Jr CA, Weiss ST, Zhang S, Willett WC, Speizer FE. Prospective study of body mass index, weight change, and risk


58. Sesso HD, Buring JE, Norkus EP, Gaziano JM. Plasma lycopene, other carotenoids, and retinol and the risk of cardiovascular


