# Research policy on Cross-Sectional Studies in Pharmacy Practice

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## ABSTRACT

**Objectives:** This study illustrates the Research policy of Cross-Sectional Studies in Pharmaceutical Care Services as a new initiative in Saudi Arabia. **Methods:** This article is a narrative review of pharmacy research. Litterateur researched specific research policies and procedures in pharmacy practice using a variety of databases, including PubMed, Medline, and Google Scholar. The period covered for the search is from the 1960s to October 2021. The terms used are in the English language and encompasses narrative reviews, systemic reviews, meta-analyses, and guidelines. The search term includes all hospital and community pharmacy-related services. Besides, there are national and international guidelines for conducting general research in hospital practice. The pharmacy research committee was formed and comprised numerous expert members, including clinical pharmacists, pharmacists who specialise in drug information, and clinical research specialists. A member drafted the policy's guidelines, which were then reviewed and corrected by another member. The research specialist made the third revision. The topic emphasises the Pharmacy Research policy of cross-sectional studies design. **Results:** Pharmacy Research's policy on cross-sectional studies design in pharmacy practice covered a variety of topics. This includes an examination of the advantages and disadvantages of cross-sectional studies design, as well as the procedures for conducting cross-sectional research in pharmaceutical care services. **Conclusion:** A novel initiative in pharmacy practice is the development of a pharmacy research strategy that governs the design of cross-sectional studies. The cross-sectional studies used to develop pharmacy policies increased the number and quality of pharmacy research at public and private healthcare organisations. Thus, the cross-sectional design in pharmacy research policy is a basic foundation to implement in Saudi Arabia.
**Keywords:** Research, Policy, Pharmacy, Cross-sectional, Saudi Arabia.

## INTRODUCTION

Pharmaceutical care and administration programs have been founded by pharmacy leaders in recent years.[1-2] This pharmacy practice is based on pharmacy strategic plans.[3-4] There are numerous methods for determining the project's success that includes pharmacy management indicators, which are determined by a questionnaire distributed to our customers' specific patients or by another survey distributed to stakeholders such as pharmacists.[3-4] Besides, it is necessary to assess the current performance of pharmacy services before and following the implementation of new services.[3-4] All previous data collection methods, such as questionnaires or surveys, have resulted in the collection of data. The researcher must specify the number of respondents during distribution. It is difficult to reach all populations or all pharmacists with the survey. To adequately answer the study's questions, it is preferable to use multiple samples, and the model should accurately represent the study's population. The most effective way is to utilise a cross-sectional design. Numerous previous studies on pharmacy practice programmes used a cross-sectional research model to determine the program's patient satisfaction or perception.[5-8] Additional research examined specific knowledge or perceptions regarding pharmaceutical care.[9-13] Numerous guidelines discussed the cross-sectional model in research practice and the model's advantages and disadvantages.[13-22] However, the policies and procedures for cross-sectional research are not well documented or are only found infrequently in the literature search database.[23-24] The authors are unfamiliar with the cross-sectional research model, pharmacy practice policies, and procedures.

## MATERIALS AND METHODS

It's a narrative review of pharmacy research. Litterateur searched for specific topics related to research in pharmacy practice in a variety of databases, including PubMed, Medline, and Google Scholar. The time frame for the search is from the 1960s to October 2021. The terms used were in English and included narrative review, systemic review, Meta-analysis, and guidelines. The policies were limited for the previous ten years. In a search term, all hospital or community pharmacy services are included. Inpatient pharmacy, outpatient or ambulatory care pharmacy, satellite pharmacy, extemporaneous preparation, repackaging units, pharmacy store, drug information centre, and clinical pharmacy services were among the pharmacy services available. Furthermore, the National and international guidelines for general research in hospital practice.[25-38] The Saudi Food and Drug Authority (SFDA),[27-28] the European Medicine

Agency,[32] the American Society of Health-System Pharmacist (ASHP),[33] and the World Health Organization (WHO),[30] and other literature.[13-22,39-40] Besides, Equator Network; the library of health research guidelines in observational studies. That includes Strengthening the reporting of observational studies in epidemiology (STROBE) statement: guidelines for reporting observational studies guided of writing policy and procedures.[23-24] The pharmacy research committee was formed and comprised of numerous expert members. This includes clinical pharmacists, pharmacists who specialise in drug information, and clinical research specialists. One member drafted the policy guidelines, another member reviewed and corrected them, and a research specialist revised them three times. The topic covered various areas, including Case reports and case series, Cross-sectional study, Case-control study, Cohort study, ethical committees, data collection and Randomized controlled trial (RCT). The current review emphasized on cross-sectional design. The review adopted based on the international Appraisal of Guidelines, Research, and Evaluation (AGREE) standard.[41]

## The search term methodology was done as follows

Search:**pharmacy research policy[Title/Abstract]**Filters:**Full text, Humans, English**

((“pharmacie”[All Fields] OR “pharmacies”[MeSH Terms] OR “pharmacies”[All Fields] OR “pharmacy”[MeSH Terms] OR “pharmacy”[All Fields] OR “pharmacy s”[All Fields]) AND “research policy”[Title/Abstract]) AND ((fft[Filter]) AND (humans[Filter]) AND (english[Filter]))

## Translations

**pharmacy:** «pharmacie”[All Fields] OR “pharmacies”[MeSH Terms] OR “pharmacies”[All Fields] OR “pharmacy”[MeSH Terms] OR “pharmacy”[All Fields] OR “pharmacy’s”[All Fields]

Search:**pharmaceutical research policy[Title/Abstract]**Filters:**Full text, Humans, English**

((“biopharmaceutics”[MeSH Terms] OR “biopharmaceutics”[All Fields] OR “pharmaceutic”[All Fields] OR “pharmaceutics”[All Fields] OR “pharmaceutical preparations”[MeSH Terms] OR (“pharmaceutical”[All Fields] AND “preparations”[All Fields]) OR “pharmaceutical preparations”[All Fields] OR “pharmaceutical”[All Fields] OR “pharmaceuticals”[All Fields] OR “pharmaceutical s”[All Fields] OR “pharmaceutically”[All Fields]) AND “research policy”[Title/Abstract]) AND ((fft[Filter]) AND (humans[Filter]) AND (english[Filter]))

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Search:**investigational drug policy[Title/Abstract]**Filters:**Full text, Humans, English**

(“investigational”[All Fields] AND “drug policy”[Title/Abstract]) AND ((fft[Filter]) AND (humans[Filter]) AND (english[Filter]))

Search:**clinical trial policy[Title/Abstract]** Filters:**Full text, Humans, English**

(“clinical trial policy”[Title/Abstract]) AND ((fft[Filter]) AND (humans[Filter]) AND (english[Filter]))

Search:**cross sectional research[Title/Abstract]**Filters:**Full text, Guideline, Meta-Analysis, Practice Guideline, Review, Systematic Review, in the last 10 years, Humans, English**

(“cross sectional research”[Title/Abstract]) AND ((y_10[Filter]) AND (guideline[Filter] OR meta-analysis[Filter] OR practiceguideline[Filter] OR review[Filter] OR systematicreview[Filter]) AND (fft[Filter]) AND (humans[Filter]) AND (english[Filter]))

Search:**cross sectional study[Title]**Filters:**Full text, Guideline, Meta-Analysis, Practice Guideline, Review, Systematic Review, in the last 10 years, Humans, English**

(“cross sectional study”[Title]) AND ((y_10[Filter]) AND (guideline[Filter] OR meta-analysis[Filter] OR practiceguideline[Filter] OR review[Filter] OR systematicreview[Filter]) AND (fft[Filter]) AND (humans[Filter]) AND (english[Filter]))

Search: **cross sectional policy[Title]** Filters: **Full text, Guideline, Meta-Analysis, Practice Guideline, Review, Systematic Review, in the last 10 years, Humans, English**

((“cross sectional studies”[MeSH Terms] OR (“cross sectional”[All Fields] AND “studies”[All Fields]) OR “cross sectional studies”[All Fields] OR (“cross”[All Fields] AND “sectional”[All Fields]) OR “cross sectional”[All Fields]) AND “policy”[Title]) AND ((y_10[Filter]) AND (guideline[Filter] OR meta-analysis[Filter] OR practiceguideline[Filter] OR review[Filter] OR systematicreview[Filter]) AND (fft[Filter]) AND (humans[Filter]) AND (english[Filter]))

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**cross sectional:** «cross-sectional studies»[MeSH Terms] OR (“cross-sectional”[All Fields] AND “studies”[All Fields]) OR “cross-sectional studies”[All Fields] OR (“cross”[All Fields] AND “sectional”[All Fields]) OR “cross sectional”[All Fields]

Search: **cross sectional policy[MeSH Terms]** Filters: **Full text, Guideline, Meta-Analysis, Practice Guideline, Review, Systematic Review, in the last 10 years, Humans, English**

((“cross sectional studies”[MeSH Terms] OR (“cross sectional”[All Fields] AND “studies”[All Fields]) OR “cross sectional studies”[All Fields] OR (“cross”[All Fields] AND “sectional”[All Fields]) OR “cross sectional”[All Fields]) AND “policy”[MeSH Terms]) AND ((y_10[Filter]) AND (guideline[Filter] OR meta-analysis[Filter] OR practiceguideline[Filter] OR review[Filter] OR systematicreview[Filter]) AND (fft[Filter]) AND (humans[Filter]) AND (english[Filter]))

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**policy[MeSH Terms]:**«policy»[MeSH Terms]

Search:**cross sectional procedure [Title/Abstract]**Filters:**Full text, Guideline, Meta-Analysis, Practice Guideline, Review, Systematic Review, in the last 10 years, Humans, English**

(“cross sectional procedure”[Title/Abstract]) AND ((y_10[Filter]) AND (guideline[Filter] OR meta-analysis[Filter] OR practiceguideline[Filter] OR review[Filter] OR systematicreview[Filter]) AND (fft[Filter]) AND (humans[Filter]) AND (english[Filter]))

Search: **cross sectional procedure[MeSH Terms]** Filters: **Full text, Guideline, Meta-Analysis, Practice Guideline, Review, Systematic Review, in the last 10 years, Humans, English**

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**procedure[MeSH Terms]:**«methods»[MeSH Terms]

Search:**cross sectional report[Title/Abstract]** Filters:**Full text, Guideline, Meta-Analysis, Practice Guideline, Review, Systematic Review, in the last 10 years, Humans, English** ("cross sectional report"[Title/Abstract]) AND ((y_10[Filter]) AND (guideline[Filter] OR meta-analysis[Filter] OR practiceguideline [Filter] OR review[Filter] OR systematicreview [Filter]) AND (fft[Filter]) AND (humans [Filter]) AND (english[Filter]))

Search:**cross sectional report[MeSH Terms]** Filters:**Full text, Guideline, Meta-Analysis, Practice Guideline, Review, Systematic Review, in the last 10 years, Humans, English** (("cross sectional studies"[MeSH Terms] OR ("cross sectional"[All Fields] AND "studies"[All Fields]) OR "cross sectional studies"[All Fields] OR ("cross"[All Fields] AND "sectional"[All Fields]) OR "cross sectional"[All Fields]) AND "research report"[MeSH Terms]) AND ((y_10[Filter]) AND (guideline[Filter] OR meta-analysis[Filter] OR practiceguideline [Filter] OR review[Filter] OR systematicreview [Filter]) AND (fft[Filter]) AND (humans [Filter]) AND (english[Filter]))

## Translations

**crosssectional:**«cross-sectionalstudies»[MeSH Terms] OR ("cross-sectional"[All Fields] AND "studies"[All Fields]) OR "cross-sectional studies"[All Fields] OR ("cross"[All Fields] AND "sectional"[All Fields]) OR "cross sectional"[All Fields]

**report[MeSH Terms]:**«research report»[MeSH Terms]

## RESULTS AND DISCUSSION

There are two main categories of research: observational, or studies in which subjects are observed, and experimental, or studies in which the effect of an intervention is observed.[20] Records of the observations made of subjects during a particular event. These studies are frequently retrospective, which means they look back in time or evaluate past events. Case-control, cohort, follow-up, and cross-sectional studies are all types of observational studies.[20] The second category is experimental research, which refers to studies that examine the effect of an intervention. The study is designed to provide prospective answers to a question.

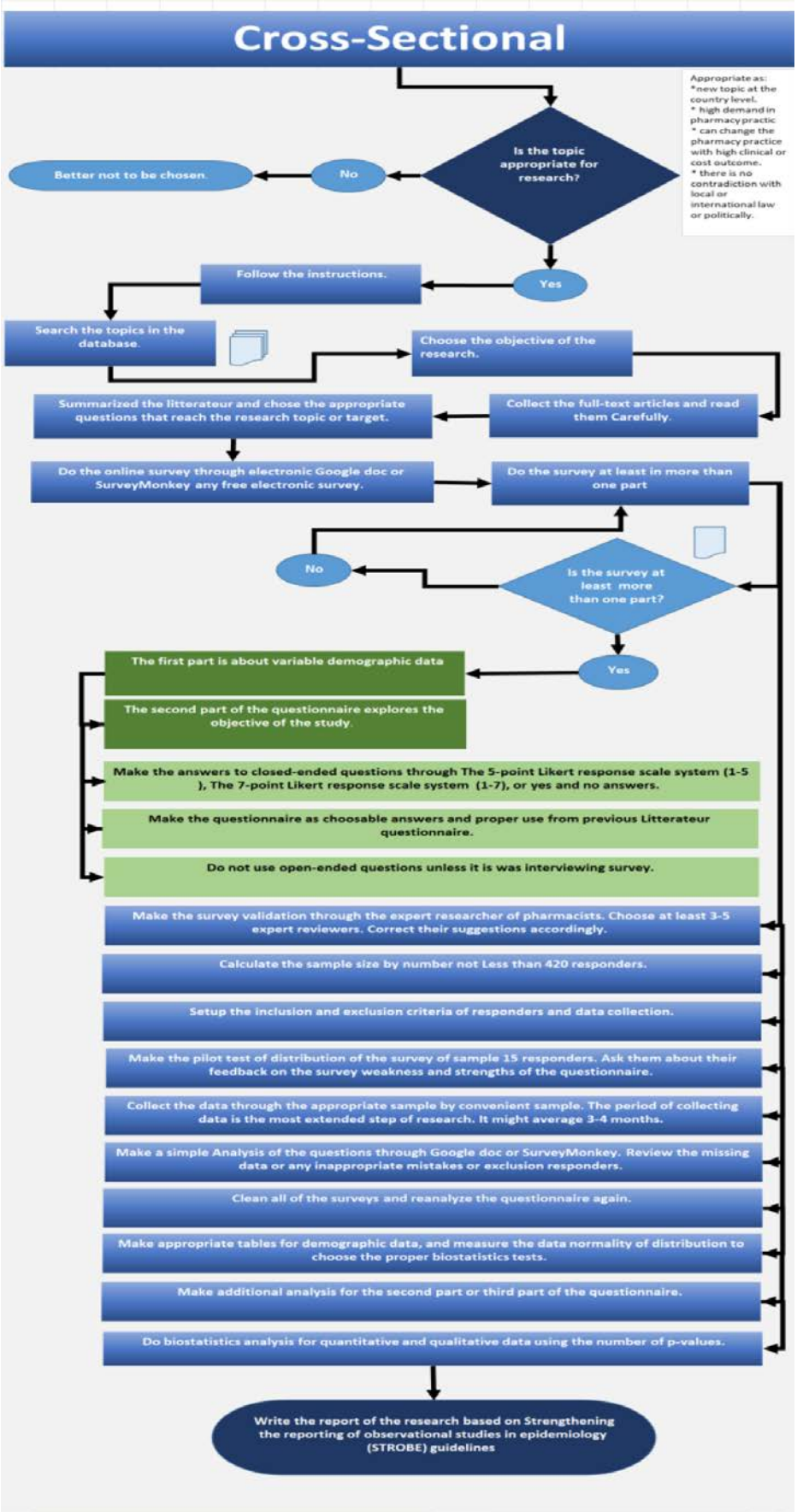


**Figure 1:** Cross-sectional design procedures flow chart.

An experimental study, such as a clinical trial, compares the results of the drug in two patients over time. From the time the patient begins taking the medication until the end of the study, data are collected.[20]

Cross-sectional studies are used to determine the prevalence of an event in a population at a particular time (single point). These studies, which are typically conducted for epidemiological purposes, ascertain the prevalence of a disease or other occurrence on a specific date.[20]

The Advantages Cross-sectional studies were inexpensive and simple to conduct (quick and easy), ethically sound, easy to analyse, and quick to evaluate (opinions, situations, diseases). On the other hand, disadvantages included the following: Group sizes may be unequal, inability to quantify changes, data collection errors and transient effects, and potential bias (selection/classification).[13-18,20]

The following text policy and procedures and flow chart Figures 1 for Cross-sectional in the pharmacy practice Cross-sectional.[13-24]

1. Select an appropriate research topic. It is a more appropriate new topic at the country level; increased demand in pharmacy practice can result in significant clinical or cost outcomes. Additionally, there is no conflict with either domestic or international law or with political realities.
2. Conduct a topic search using databases such as PubMed, Google Scholar, or academic Microsoft.
3. Determine the research's objective.
4. Collect and carefully prepare the full-text articles.
5. Summarized the literature and selected pertinent questions that pertain to the research topic or objective.
6. Conduct an online survey using an electronic Google doc or a free electronic survey platform such as SurveyMonkey.
7. Conduct the survey in at least two sections. The first section discusses demographic data that is subject to change. The second section of the questionnaire delves into the study's objective.
8. Provide responses to closed-ended questions using the 5-point Likert scale (1-5), the 7-point Likert scale (1-7), or yes/no responses.
9. Create a questionnaire with selectable responses and appropriate use of previous Litterateur questionnaires.
10. Avoid using open-ended questions unless conducting an interview survey.
11. Validate the survey with the assistance of a pharmacist expert researcher. Select a minimum of 3-5 expert reviewers. Adjust their suggestions as necessary.
12. Calculate the sample size using a sample size of at least 420 respondents.
13. Establish criteria for respondent inclusion and exclusion and data collection.
14. Conduct a pilot test of the survey's distribution on a sample of 15 respondents. Inquire about their feedback on the questionnaire's strengths and weaknesses.
15. Collect data using appropriate sample size and convenient sample size. The period of data collection is the most time-consuming stage of research. It may take between 3 and 4 months on average.
16. Conduct a straightforward analysis of the questions using Google Docs or SurveyMonkey. Examine any missing data, any inadvertent errors, or exclusion of responders.
17. Conduct a thorough cleaning of all surveys and re-analyze the questionnaire.
18. Create appropriate tables for demographic data and determine the normality of the data distribution to select the appropriate biostatistics tests.
19. Conduct additional analysis for the questionnaire's second or third section.
20. Using the number of p-values, conduct biostatistical analysis on quantitative and qualitative data.
21. Write the research report in accordance with the guidelines for Strengthening the reporting of observational studies in epidemiology (STROBE).[23,24]

## CONCLUSION

Policies and procedures for conducting a cross-sectional study in pharmacy practice are critical for developing research abilities. In pharmacoepidemiology, the majority of pharmacy research was conducted using a cross-sectional design model. It is simple, quick, and allows for greater research management. It will motivate pharmacists to engage in additional research and will reflect implementation in a variety of pharmacy settings and specialities. The cross-sectional policy and procedures are critical for conducting research in Saudi Arabia and throughout the world among pharmacy career professionals.

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## CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

## Funding

None

## Consent For Publications

Informed consent was obtained from all the participants

## Ethical Approval

This research was exempted from research and ethical committee or an institutional review board (IRB) approval.

https://www.hhs.gov/ohrp/regulations-and-policy/decision-charts-2018/index.html

## ABBREVIATIONS

**KSA:** Kingdom of Saudi; **SFDA:** Saudi Food and Drug Authority; **WHO:** World Health Organization; **ASHP:** American Society of Health-System Pharmacists; **STROBE:** Strengthening the reporting of observational studies in epidemiology; **RCT:** Randomized controlled trial; **AGREE:** Appraisal of Guidelines, Research, and Evaluation.

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