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Improve Quality Reporting of Observational Studies in Nursing Research: STROBS Statement

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ABSTRACT

The Strengthening the Reporting of Observational Studies (STROBS) Statement is a guidance document that an international group of methodologists has developed, researchers, editors, statisticians, and experts in order to enhance the quality of reporting for observational studies in nursing research and take into account empirical evidence and theoretical considerations. Implementing and using the STROBS statement will help protect nurses from scientific misconceptions leading to poor decision-making and practice. This article will discuss the importance of following the STROBS statement in nursing research, its key components, and how it can improve the quality of reporting observational studies. Review of literature based on previous studies and reviews derived from Scopus, PubMed, and Medline databases concerning STROBE statement guidelines. The data collection was conducted from December 2021 to April 2022. These studies were collected and filtered according to the specific criteria and used keywords such as STROBE, nursing studies, evidence-based nursing practice, cohort studies, case-control studies, cross-sectional and observational studies, and articles from the National Library of Medicine. Few papers have been published that demonstrate an appreciation of STROBE, but their descriptive features do not seem appropriate for nursing publications. In comparison to STROBE, relatively few papers mentioned primary sources or other information regarding the selection process for study participants and the observation time frame. Despite the widespread availability of reporting guidelines in medical and nursing, many researchers do not follow them.

Keywords: STROBS statement; guideline; observational studies; evidence-based nursing

INTRODUCTION

Too many observational studies are published without applying the (STROBS) statement guideline, which should be applied when reporting observational studies. This can lead to incorrect conclusions and the loss of public trust in the science community. Poor reporting hampers the assessment of the strengths and weaknesses of a study and the generalizability of its results. Many nursing and health research questions are studied in observational studies, and much research on disease causes is based on case-control, cohort, or cross-sectional studies. Also, observational studies have a role in researching the harms and benefits of nursing interventions. Randomized control trials (RCT) can't answer all essential questions about a given intervention. For example, observational studies are more appropriate to detect late or rare side effects of treatment and show more than just what was achieved in daily nursing practice. Researchers collect information on features and measurements of interest in observation studies but do not influence events (Alkhaqani 2021). Observation studies include most surveys and epidemiological studies and may be prospective or retrospective. Many observational studies have been conducted to investigate or explore the possible relationship between different factors and the development of disease or condition. In general, observational studies are used to investigate factors or exposures that the investigators cannot control, such as jobs or smoking habits (Rossi, Benci, and Leventhal 2017).

STROBS Statement is a guidance document that an international group of methodologists has developed, researchers, editors, statisticians, and experts to enhance the quality of reporting for observational studies in nursing research and consider empirical evidence and theoretical considerations. Much of the medical research is observational. Reports of observation studies are often not of sufficient quality. Indicate that a few papers have been published demonstrating an appreciation of STROBS, but their descriptive features did not seem appropriate for nursing publications.

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Compared to STROBS, relatively few papers mentioned primary sources or other information regarding the selection process for study participants and the observation time frame. Observational studies are essential in nursing research, providing valuable insights into the natural progression of diseases, patient experiences, and healthcare outcomes. However, reporting these studies can often take time due to their complexity. The Strengthening the Reporting of Observational Studies in Epidemiology statement was developed to provide clear and concise guidelines for reporting observational studies in a standardized format (Teut et al. 2020).

However, publications based on observational studies often need more critical information or are unclear due to insufficient reporting of potentially confounding variables, methods used for identifying cases and controls, and eligibility criteria. Reporting guidelines have therefore been developed for observational studies. The STROBS statement was created by two groups: one group was from Canada, and another was from Europe. These two groups wanted to ensure that all aspects of an observational study were reported accurately and without bias so that readers could make informed decisions about the validity of the findings. A network of methodologists and researchers created Strengthening the Reporting of Observational Studies in Epidemiology and journal editors who met in 2004. Strengthening the Reporting of Observational Studies in Epidemiology in a precise and complete article contains recommendations for minimum information in the design of three main observation studies: cohorts, case-control, and cross-sectional studies. A strengthening report on an observational statement was published in eight journals and accompanied by an explanation and elaboration article; the papers were published simultaneously in three journals (Sporbeck et al. 2013).

There is a growing concern that many nursing studies are observational and not randomized controlled trials. Observational studies cannot provide evidence of causality without intervention, as interventions may have a confounding effect on the outcome measured in such studies. Despite these limitations, observational study designs in nursing research are considered acceptable for research purposes because they are relatively low-cost and may be used to examine long-term or large populations of participants over an extended period (e.g., 20 years) (Sorensen et al. 2013). Designs that require intervention can only provide evidence about the effect of the intervention on an outcome and not about causality between the effect and cause. Prospective or experimental studies may support causal relationships but do not always need to be shown. However, more rigorous design types may be preferable if the purpose of the research is to gain knowledge about how to improve/enhance clinical practice (e.g., improving treatment strategy) or gain new institutions for research (e.g., new study designs and resources) (Manchikanti et al. 2009).

Nursing research have a vital contribution to shaping healthcare practices and policies. Only accurate or complete reporting of observational studies can lead to misinterpretation of research findings and appropriate healthcare policies and interventions. The STROBS Statement guides researchers to accurately report their findings and improve the rigour and transparency of observational studies. The STROBS Statement checklist consists of 22 items that cover various sections of an observational study, including the introduction, methods, results, and discussion. Some of the key items on the checklist include the scientific background and rationale for the study, the study design and methods used, the sample size and selection criteria, the statistical analysis methods used, and the limitations and strengths of the study. The checklist encourages researchers to consider the potential sources of bias and confounding in their studies and to report their findings clearly and transparently (Von Elm et al. 2007).

Improving the quality of reporting observational studies in nursing research is critical in ensuring that healthcare practices and policies are evidence-based and clinically relevant. The STROBS Statement provides a valuable tool for researchers to report their findings accurately and transparently, ultimately enhancing the rigour and relevance of epidemiologic research. Implementing this statement in nursing research can be facilitated by training researchers and editorial staff in the resources and requirements of STROBS or by promoting the inclusion of STROBS requirements in grant and manuscript submission requirements. This statement promotes a more evidence-based approach to designing, interpreting, and disseminating observational studies in nursing research, ultimately providing richer data to improve healthcare outcomes. In this article will discuss the importance of following the STROBS statement in nursing research, its key components, and how it can improve the quality of reporting observational studies (A. Alkhaqani 2022).

The STROBS statement is a set of guidelines researchers can use to accurately report observational studies. It consists of a checklist of 22 items that researchers should address when reporting their research findings. These items cover various aspects of the study, including the research question, sampling methods, data collection, statistical methods, results, and conclusions. By adhering to the STROBS statement, researchers can improve the quality and transparency of their research reporting, making it easier for readers to understand the study's findings. To improve the quality of reporting in nursing research studies, it is recommended that researchers adopt the STROBS statement as a minimum reporting standard. It is essential to ensure that all relevant items are included in the study's reporting to enhance the study's rigour, reproducibility, and transparency. Researchers can also consider attending workshops or training sessions on research reporting to learn more about the STROBS statement's practical application. In addition to the STROBS statement, researchers should also make an effort to implement standard reporting guidelines for specific study designs.

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For example, nursing researchers using qualitative research methods can use the Consolidated Criteria for Reporting Qualitative Research (COREQ) checklist to improve the quality of their reporting. Similarly, researchers using RCTs can use the CONSORT statement for their reporting (A. L. Alkhaqani 2022). This article will discuss the importance of following the STROBS statement in nursing research, its key components, and how it can improve the quality of reporting observational studies.

METHOD

A detailed analytical assessment of papers published between December 2021 and April 2022 was done to address these concerns. The researcher evaluated multiple types of literature in relation to the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) Statement Guideline, including past studies and reviews generated from worldwide publishers' databases such as (Scopus, PubMed, and Medline). These studies were identified and filtered using specific criteria, including STROBE, nursing studies, evidence-based nursing practice, cohort studies, case-control studies, cross-sectional and observational studies, and articles from the National Library of Medicine that contained valid and documented data from global research and epidemiology. Until now, only a few qualitative studies have been conducted to determine the extent to which reporting criteria are followed in nursing research. The paper provides an instructive overview but suffers from a shortage of empirical evidence.

RESULT

Table 1. STROBE Statement checklist of information that should be included in reports of observational studies (Cohort/Cross-sectional and case-control studies)

Section/Topic	Item No	Recommendation
Title and abstract	1a	"Indicate the study's design with a commonly used term in the title or the abstract"
	1b	"Provide in the abstract an informative and balanced summary of what was done and what was found"
Introduction		
Background/rationale	2	"Explain the scientific background and rationale for the investigation being reported"
Objectives	3	"State specific objectives, including any prespecified hypotheses"
Methods		
Study design	4	"Present key elements of study design early in the paper"
Setting	5	"Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection"
Participants	6a	Cohort study- "Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up"
	6b	Case-control study- "Give the eligibility criteria, and the sources and methods of case ascertainment and control selection. Give the rationale for the choice of cases and controls"
	6c	Cross-sectional study- "Give the eligibility criteria, and the sources and methods of selection of participants"
Variables	7	"Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable"
Data sources/ measurement	8*	"For each variable of interest, give sources of data and details of methods of assessment (measurement)".
Bias	9	"Describe any efforts to address potential sources of bias"
Study size	10	"Explain how the study size was arrived at (if applicable)"
Quantitative variables	11	"Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why"
Statistical methods	12a	"Describe all statistical methods, including those used to control for confounding"
	12b	Describe any methods used to examine subgroups and interactions
	12c	"Explain how missing data were addressed"
	12d	Cohort study- "If applicable, explain how loss to follow-up was addressed" Case-control study- "If applicable, explain how matching of cases and controls was addressed" Cross-sectional study- "If applicable, describe analytical methods taking account of sampling strategy"
	12e	"Describe any sensitivity analyses"

Cont.....

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Section/Topic	Item No	Recommendation
Results		
Participants	13*	"Report numbers of individuals at each stage of study e.g numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analyzed"
		"Use of a flow diagram"
Descriptive data	14a*	"Give characteristics of study participants (e.g., demographic, clinical, social) and information on exposures and potential confounders"
	14b	"Indicate number of participants with missing data for each variable of interest"
	14c	Cohort study- "Summarize follow-up time (e.g., average and total amount)"
Outcome data	15a*	Cohort study- "Report numbers of outcome events or summary measures over time"
	15b	Case-control study- "Report numbers in each exposure category, or summary measures of exposure"
	15c	Cross-sectional study- "Report numbers of outcome events or summary measures"
Main results	16	"Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (e.g., 95% confidence interval). Make clear which confounders were adjusted for and why they were included"
Other analyses	17	"Report other analyses done- e.g., analyses of subgroups and interactions, and sensitivity analyses"
Discussion		
Key results	18	"Summarize key results with reference to study objectives"
Limitations	19	"Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias"
Interpretation	20	"Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence"
Generalizability	21	Discuss the generalizability (external validity) of the study results

*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.
Note: "An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/)". Information on the STROBE Initiative is available at www.strobe-statement.org.

Components and checklist of the STROBS statement

One key component of the STROBS statement is clearly stating the research question or hypothesis being addressed in the study. This should be followed by a detailed description of the study design, including the type of observational study (e.g., cohort, case-control), the sampling method, and the selection criteria for study participants. It is also important to clearly define the exposures, outcomes, and confounding factors being examined in the study and to describe how data were collected and analyzed. Another important component of the STROBS statement is to report the characteristics of the study participants, including their demographic and clinical characteristics and any relevant medical history or comorbidities. This information is critical to understanding the generalizability of study findings to specific patient populations. In addition, the guidelines recommend that authors report on the validity and reliability of any measurement instruments used in the study and any sources of bias or confounding that may have affected the study findings. It is also important to clearly report any ethical considerations related to the study, including informed consent procedures, data confidentiality, and potential conflicts of interest (Skrivankova, et al., 2021).

The STROBS statement provides a checklist of key items that authors should address when reporting observational studies to ensure that all of these components are included in a study report. This checklist covers specific items such as the title and abstract of the study, the introduction and background of the research question, the methods used to conduct the study, the results of the analysis, and the conclusions and implications of the study findings. By following the STROBS statement and using the included checklist, nursing researchers can ensure that their observational studies are properly reported and meet the highest standards for quality and transparency. This, in turn, will promote the credibility and validity of research findings and help advance the nursing research field (Rossi et al. 2017). In order to facilitate the review to be made easier to understand, the STROBS checklist was divided into six sections based on paper components or parts of the article.

1. **Title and abstract:** title should be informative, identify the study as observational, be brief, concise, and avoid abbreviations. Indicate observational as the study's design in the title and/or the abstract. The abstract should be organized to include: the research problem, trial design, methods, objectives, key results or arguments, and conclusions.
2. **Introduction:** should be included; scientific background information, a brief review of the literature, generates interest, explanation of the rationale for the reported study (Is causality between exposure and outcome plausible? Justify why this study design is a helpful method to address the study question). The specific objectives of the State must be clearly

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and objectively reported, including a predefined causal hypothesis (if any), all of which should be written clearly and objectively.

3. **Method:** Comprehensive description and explanation methods used in the observational. It should explain what it did and how did it? And reported carefully as follows:
   a. **Study design and data sources:** The main elements of the study design are presented in the early paragraph of the paper. Consider including tables of data sources for all stages of research. For each source of data that contributes to analysis: Explain the study's design and the research population at the bottom, which was drawn for obvious reasons. Also, describe the locations, setting, and relevant data, including recruitment periods, exposure, monitoring, and data collection times, and where the data were collected if available. Describe the eligibility criteria, sources, and methods for participant selection and enrolled participants with an explanation of the justification for these criteria. Explain how the sample size was analyzed and report the calculated sample size. Describe the measurement, quality, and selection of the variants. For each exposure, outcome, and other relevant variables, describe assessment methods and the diagnostic criteria used in the case of diseases. Provide the approval of the Ethics Committee and the informed consent of the participants if necessary.
   b. **Hypotheses:** Explain the main analysis assumptions explicitly (e.g., relevance, exclusion, independence, consistency) and all additional or sensitive analysis assumptions.
   c. **Assumption's assessment:** Describe the methods used to evaluate assumptions or justify their validity.
   d. **Statistical methods:** Describe appropriate statistical methods for analysis and statistics used. Describe how quantitative variables are dealt with in analysis. (i.e., scale, units, model). Describe the identification of the variations and weights to be included in the analysis (i.e., model and independence). Consider a flow chart. Describe how the missing data has been addressed and, if applicable, explain how multiple testing was dealt with.
   e. **Software and pre-registration:** Describe the name of the statistical software and including the version and settings used. Whether the study protocol and enough details were pre-registered allows results to be re-procedure (as well as where and when).
4. **Results:** In descriptive data, report the number of individuals included in each study phase and the reasons for their exclusion. Consider the use of a flow chart. The summary statistics of experimental exposure, outcome(s), and other related variables (e.g., mean, standard deviation, proportion) are reported. If the data source contains a meta-analysis of previous studies, specify the number of studies, the ancestors of those studies, if available, and the evaluation of heterogeneity between these studies. Provide information on the similarities between a variant exposure sample and an outcome and the extent of the sample overlapping between the source of exposure and the outcome. In the main results, Report the relationship between the variant and the exposure and the variant and the outcome, preferably at an interpreted scale. The causal effect estimates between exposure and outcome and the uncertainty measures obtained from the analysis are reported. Use intuitive scales such as odds ratios or relative risks for standard deviation differences. Follow-up periods, determining the recruitment periods, the statistical methods used, and estimated effect size to obtain the primary and secondary outcome values; results such as confidence interval (95%) should be reported.
5. **Discussion:** summarize the main results concerning the objectives of the study. Discuss the study's limitations, consider the validity of the assumptions, and address other sources of potential bias and methodological inaccuracies. Discuss both the direction and magnitude of any potential biases and any efforts to address them. Give an overall interpretation of findings, balancing benefits and harms, considering objectives and limitations. Compare with the outcomes from other relevant evidence and studies. Discuss whether the results are clinical or relevant and whether the effect of the intervention is the same. Discuss whether the results are clinically useful or relevant and whether the impact of interventions can be the same effect size. Discuss the generalization, applicability of the study results to other populations (e.g., external validity), different exposure periods and time frames, and other exposure levels.
6. **Other important information:** the observational study must be registered and provided with the name of the study registry and registration number; should be available the full study protocol should give the sources of funding and different types of support and should be highlighted the role of the funders for the present study and, if applicable, for the original study or studies on which the present article is based. The present data are used for all analysis, reporting locations, and data access methods. If the statistical code is accessible to the public, where is it? All authors should declare all potential conflicts of interest.

Additionally to the checklist, reporting registration, assignment, follow-up, and analysis of patients participating in the observational study, the STROBS statement also includes a flow chart that provides the reader with information on conducting the study. Most importantly, the clinical nurses should analyze the presence and quality flow chart in the observational study being evaluated. It provides a broad view of how the study was conducted and briefly reports on the method used.

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Importance of effective reporting in observational studies in nursing research

The Strengthening the Reporting of Observational Studies in Epidemiology statement was developed to improve the quality of reporting of observational studies in nursing research. This reporting guideline aims to provide a standardized and comprehensive framework for reporting observational studies, ensuring that all necessary information is reported. The STROBS statement encompasses six domains that cover the essential components of observational studies, including the introduction, methods, results, discussion, and conclusion. The significance of the STROBS statement lies in the fact that it enhances the transparency and completeness of reporting, reducing the chances of reporting bias and increasing the replicability of observational studies. Moreover, using these guidelines also enhances the quality of evidence from observational studies, which allows for robust decision-making within clinical settings (Schriger 2005).

Effective reporting using the STROBS statement helps to provide a clear understanding of the methods and results of observational studies. The STROBS statement provides a checklist of items to be included in the study report. The items provide consistent and straightforward guidelines, ensuring completeness in the reporting of observational studies. It also helps to facilitate peer review by creating an easily accessible framework to evaluate the study's quality, enhancing reproducibility by making it clear and concise what was done, and improving communication between nursing professionals and researchers.

Guideline and principles of the STROBS statement for high-quality reporting

One of the key principles of the STROBS statement is transparency. This principle requires that researchers fully disclose all relevant details about their study, including the study design, recruitment methods, eligibility criteria, and data collection procedures. By being transparent about the methods used in the study, researchers can increase the trustworthiness of their findings and enable other researchers to replicate their work. Another important principle of the STROBS statement is accuracy. This principle requires that researchers report their findings accurately and completely, including any potential biases or limitations of their study. By accurately reporting these factors, researchers can help readers better understand the strengths and weaknesses of the study and the potential implications of the results. The STROBS statement also emphasizes the importance of clearly defining the hypotheses, outcomes, and statistical analyses used in the study. By clearly defining these components, researchers can ensure that their findings are interpretable and that their study is replicable by other researchers (O'Connor et al. 2016).

Additionally, the STROBS statement emphasizes the importance of accounting for potential confounding variables in the study design and statistical analysis. Confounding variables, such as demographic characteristics, medical history, and lifestyle factors, can impact the relationship between the exposures and outcomes being studied. Thus, it is important to control for these factors to ensure that any observed associations are not simply due to confounding.

Effective STROBS-based reporting in nursing research

One example of the effective use of the STROBS Statement in nursing research is a study investigating the association between nurse staffing levels and patient outcomes in acute care hospitals in China. The study used a cross-sectional design and collected data from 180 hospitals nationwide. The researchers followed the STROBS Statement in reporting the study findings, providing detailed information on the study design, sampling strategy, data collection, and statistical analysis. They also included a flow diagram that provided a clear overview of the study's participants and sampling strategy. Another example of effective STROBS-based reporting in nursing research is a case-control study that examined the factors associated with falls among elderly patients in a long-term care facility. The researchers followed the STROBS guidelines in reporting the study design, participant selection, and data collection methods in this study. They specifically reported the matching criteria and the number of cases and controls recruited, which provided transparency in the study design. Furthermore, they provided a detailed description of the variables studied and how they were measured, which allowed for replication of the study in other settings (Sorensen et al. 2014).

Benefits and impact of using the STROBS statement for improving reporting quality

The STROBS statement, or Strengthening the Reporting of Observational Studies in Epidemiology, is a set of guidelines that outlines the key elements necessary for conducting quality observational studies. It includes a checklist of 22 items that should be included in any observational study report, including details on the study's design, sample size, data analysis, and limitations. By following these guidelines, researchers can ensure that their observational study reports provide clear and accurate information about the research they conducted. One of the significant benefits of using the STROBS statement is the improved quality of reporting in observational studies. The STROBS checklist helps ensure that any information deemed relevant to the study is included in the report, which increases transparency and clarity. This clarity helps other researchers understand the study's findings and limitations, which can lead to further research and improved patient outcomes (Vandenbroucke et al. 2014).

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Another benefit of using the STROBS statement is its ability to improve the consistency of reporting across studies. By providing a clear framework for report writing, the STROBS statement promotes consistency in how research is presented. This consistency is essential as it enables researchers to compare studies and draw meaningful conclusions from the results .Using the STROBS statement to improve the quality of observational studies in nursing research is significant. Improved reporting quality increases transparency, consistency, and reproducibility of research findings. This bolsters the credibility of nursing research and improves patient care, as healthcare professionals can base their decisions on reliable and accurate research evidence (Sorensen et al. 2013).

Implications for nursing practice, education, and research

Using STROBS Statement enhances the understanding and interpretation of observational studies in nursing practice. Due to the diverse population and complex health concerns, nurses require evidence-based research to make informed practice decisions. STROBS improves the completeness and transparency of reporting observational studies, which enables practitioners to obtain accurate and relevant information for decision-making. Therefore, nurses can use this tool to appraise the quality of observational studies reporting in practice and identify limitations and gaps in research, ultimately improving patient outcomes. Regarding education, incorporating the STROBS Statement in nursing education programs enhances the students' ability to evaluate the quality of observational studies critically. By improving the quality of reporting, students can make informed clinical decisions and develop evidence-based practices. Adopting the STROBS Statement in the nursing education curriculum can also emphasize the importance of transparency and completeness in research reporting. By doing so, students can apply STROBS principles in their future research projects, ensuring robust research findings and improving evidence-based practices in the nursing field (Sporbeck et al. 2013).

Through research, STROBS can facilitate a systematic evaluation of observational studies' quality and contribute to developing nursing research. These studies require an informed approach to studying design, analysis, and reporting, and the adoption of the STROBS Statement facilitates better research reporting quality, increasing the reliability of the findings. Additionally, STROBS promotes uniform reporting standards, which aids in the interpretation and combined analysis of observational studies. This can lead to the creation of new avenues for the nursing field, which would enhance nursing knowledge and patient care practices (Elm et al. 2007).

DISCUSSION

The STROBS statement guides the reporting of observational studies in nursing. STROBS was developed by the Center for Research-based Nursing Practice (CRNP) and endorsed by the American Nurses Association (ANA). The guideline is updated every year. The guideline outlines the types of observational studies and, more importantly, guides on which type of study designs are most appropriate for different purposes. STROBS statement is a reporting guideline that helps identify studies according to the type of study design used and provides guidance on appropriately reporting them appropriately. In recent years, there has been significant discussion on the importance of ensuring that results from observational studies are clearly reported in research papers and presented objectively and transparently. Yet, little is known about whether adherence to any reporting guideline is associated with better reporting quality. A study published in 2011 in the Journal of Clinical Nursing found that over 50% of reviews published in major nursing journals did not adhere to the Strengthening the Reporting of Observational Studies in Epidemiology Statement guidelines (Sorensen et al., 2011). Study quality was improved by a group of investigators across multiple journals. The team found that less than 50% adherence is common in research involving nurses and said that an adherence rate of 75% or greater should be the goal in all scientific disciplines.

Several studies have shown that the reporting quality of articles using STROBS standardization is better than that of others. The Sword-CS study showed that stroboscope statements improved the reporting quality in observational ontological and audiological studies. A cross-sectional study published in the Korean Journal of Women's Health and Nursing adequately described many stroboscopes. Two researchers evaluated the included studies based on the stroboscope statement, and the differences were resolved through discussions (Davey Smith et al. 2019). For example, suppose that a case-control study of heart attack and oral contraceptives is included in an extensive pharmaceutical and epidemiological database with information about thousands of women as possible controls. In that case, researchers might be tempted to match controls with similar risk factors for heart attack cases. In case-control studies, a reasonable choice must be made to apply matching controls to case variables, either through a precise matching method or by using an appropriate statistical analysis method. One aim is to adapt to factors affecting oral contraceptives' prescription and control confusing indications (O'Connor et al. 2016).

The application of STROBS in Nursing Research has not been studied extensively yet. This leads to a general lack of knowledge about how to use the STROBS Statement Guideline in nursing studies. Although no study has been done

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about applying STROBS Statement Guideline in Nursing Studies, this paper analyzes various research articles published using this guideline. The STROBS Statement guideline aims to provide a systematic and transparent reporting of observational studies in nursing research. The STROBS statement provides a checklist for authors to use in order to reduce bias and enhance the quality of their research studies. The protocol checks for many important aspects, like study design, data collection, and analysis. This is done to increase the quality of reporting on observational studies in nursing research. This guideline intends to foster rigorous, reliable, and valid results from observational studies in nursing. It also guides how to strengthen reporting when publishing these studies in scientific journals so that readers are able to see information about study methodology, analysis methods, and data collection techniques for themselves (Vandenbroucke et al. 2007).

Reporting on such research is inadequate and hampers the evaluation of its strengths and weaknesses and the generalization of studies. Guidelines for reporting non-randomized data in research for reporting studies using observed and collected health data (STROBS statement) do not adequately capture the complexity of pharmacoepidemiologic research. Reporting on this research is often inadequate, hampering the evaluation of its strengths and weaknesses and its generalization (Skrivankova, et al., 2021). In order to make the review can be made easier to understand, the STROBSS checklist has been divided into six sections according to the components of the paper or parts of the article:

1. **Context** - what is the study about?
2. **Design** - what was the design?
3. **Participants** - who participated in this study?
4. **Methodology** - what were the method, and how were they done?
5. **Results** - what are the results and their significance?
6. **Conclusion**- does this finding change practice or policy now or in the future?

The update of Strengthening the Reporting of Observation Studies in Epidemiology statement was published in 2007 to “improve the quality of observational study reporting, improve transparency in reporting, and allow for critical assessment by others of the strengths and weaknesses in study design, conduct, and analysis”. This is important because quality and transparency are key principles that guide health research, where the findings may substantially impact clinical practice and health service provision (Dai et al. 2020). The STROBS Statement was established to improve the quality of reporting observational research by providing recommendations for transparent reporting methods and a complete disclosure of study limitations. Thus, it has the characteristics of a helpful research tool, making it possible for investigators and clinical nurses to perform an observational study and provide an accurate decision on the evidence presented (A. L. Alkhaqani 2022). Furthermore, the researcher will be able to determine the overall quality of the observational research and study the design.

CONCLUSION

The STROBS statement can help plan observation studies and guide peer reviewers and editors in evaluating manuscripts. Recent reports have shown that the STROBS statement is not followed as often as it should be. Study results suggest that despite the widespread availability of reporting guidelines in medical and nursing, many researchers do not follow them. The STROBS statement provides a valuable tool for improving the quality of reporting observational studies in nursing research. By ensuring that studies are reported transparently and comprehensively, the STROBS statement can enhance the credibility and usefulness of research findings and promote the evidence-based nursing practice. Researchers, reviewers, and editors alike need to familiarize themselves with the STROBS statement and integrate its guidelines into their research practices. By doing so, we can improve the quality of research in nursing and contribute to better patient outcomes. The study's findings indicate that, despite the broad availability of reporting rules in the medical and nursing areas, many researchers fail to adhere to them. Thorough reporting is an essential part of good research. Statistics, methods, and results can be hard to understand if they’re not clearly explained. The guidelines help the researchers create a clean and organized piece of work. The guidelines are easy to use. Making the work look good will show that researchers are serious about the study. Improvement of the quality and transparency of reporting on nursing observation studies suggests that researchers follow the Strengthening the Reporting of Observational Studies in Epidemiology Statement guideline when preparing or submitting research. The researchers must follow guidelines that provide concrete steps and procedures to ensure the reliability of observational studies. Use adequate checklist reporting, e.g., Consolidated Standards of Reporting Trials (CONSORT) (Alkhaqani 2023), Strengthening the Reporting of Observational Studies in Epidemiology (STROBS).

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CONFLICTS OF INTEREST

The author declares no conflict of interest.

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