Effectiveness of Smoking Cessation in Heart Disease Patients:

An Integrative Review

A Scholarly Project

Submitted to the

Faculty of Liberty University

in Partial Fulfillment of

The Requirements for the Degree

of Doctor of Nursing Practice

By Dolly Griggs

Liberty University

Lynchburg, VA

October 2021

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Scholarly Project Chair Approval

Debra M. Maddox 10/20/2021

ABSTRACT

Tobacco smoking is associated with cardiovascular, respiratory, cancer-related illnesses, and deaths. Tobacco toxin clogs blood arteries, leading to increased risks of cardiovascular diseases or death. Smoking cessation programs have been implemented to aid patients with abstaining from tobacco usage, particularly those with heart-related diseases. The challenges experienced in implementing smoking cessation interventions include a lack of follow-ups, support, and education regarding the risks associated with smoking tobacco. The aim of this project was to examine the effectiveness of the smoking cessation intervention and programs implemented in patients diagnosed with heart diseases. An integrative study review was applied to assess interventions used in diverse settings to aid in tobacco cessation. The findings included that behavioral, pharmacological, telephone, and individual counseling smoking cessation interventions were applied to aid the patients diagnosed with heart diseases to quit smoking. The smoking cessation interventions implemented were effective among patients diagnosed with heart diseases, and short-term and long-term follow-ups were essential for evaluating patients' progress.

Keywords: Tobacco use, heart diseases, smoking cessation interventions, behavioral, pharmacological, telephone, and individual counseling interventions.

Dedication

In honor of my loving son, Christian Griggs, I dedicate this project to you. Forever in my heart. Always loved and never forgotten.

Acknowledgments

I want to acknowledge and express my gratitude to Dr. Debra Maddox, Chairperson, for your inspiration, encouragement, and numerous reviews and revisions. I want to acknowledge my husband, Anthony Griggs; daughter, Krystle Miller; son-in-law, Alex Miller; and grandchildren, Maverick Christian Miller and Sterling Adeline Miller, for being so supportive, encouraging, and always uplifting toward me during the difficult times. To my best friend, Dr. Tandeka Burks, as a new graduate, you were a mentor and assisted with integrating me into my new role; thank you for being non-judgmental, empathetic, and for all your phone calls and texts of encouragement. Lastly, I would like to thank my preceptor, Darrell Greene, and all those who prayed and supported me during my project.

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Table 1

Project Timeline

Activities	Date
Step 1: Formulated population, intervention, comparison, outcome, and timeframe (PICOT) question for the proposed project	February 5, 2021
Step 2: Completed introduction, literature review, level of evidence	February 11, 2021
Step 3: Completed search strategy, critical appraisal, and synthesis	February 25, 2021
Step 4: Completed the research design, measurable outcomes, and data analysis	March 1, 2021
Step 5: Completed CITI training	March 9, 2021
Step 6: Defend Scholarly Project Proposal	June 25, 2021
Step 7: IRB approval for proposed project	July 6, 2021
Step 8: Completed thematic data analysis matrix	September 17, 2021
Step 9: Submit completed first draft section 1-5 for review and revisions	October 1, 2021
Step 10: Submit to Editor (10-day turnaround)	September 26, 2021
Step 11: Request final defense appointment	November 1, 2021
Step 12: Submit final PowerPoint for defense	November 1, 2021
Step 13: Final defense	November 12, 2021
Step 14: Submit to Scholarly Crossing	December 15, 2021

List of Abbreviations

Absolute risk reduction (ARR)

Cardiovascular diseases (CVD)

Center for Disease Control and Prevention (CDC)

Coronary heart disease (CHD)

Doctor of Nursing Practice (DNP)

Emergency Department (ED)

Evidence-based practice (EBP)

Food and Drug Association (FDA)

Hazard ratio (HR)

Institutional Review Board (IRB)

Johns Hopkins Nursing Evidence-Based Practice (JHNEBP)

Odds ratio (OR)

Population, intervention, comparison, outcome, and timeframe (PICOT)

Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)

Relative risk (RR)

Smokeless tobacco (SLT)

U.S. Department of Health and Human Services (USDHHS)

World Health Organization (WHO)

SECTION ONE: INTRODUCTION

Background

Smoking is one of the leading causes of heart disease in the United States (Centers for Disease Control and Prevention [CDC], 2020). Smoking tobacco causes lung diseases, cardiovascular diseases (CVDs), and various cancers (Choi et al., 2019). According to the CDC (2020), one in every four U.S. deaths is due to CVD. In addition, approximately 800,000 U.S. people die of CVDs annually. Exposure to secondhand smoke also contributes to heart diseases. The World Health Organization (WHO, 2020) evidence indicates that smoking causes 20% of heart-related diseases and complications. People with a history of tobacco smoking have a higher prevalence of heart failure and CVD-related complications than nonsmokers (Lee & Son, 2019). Smoking cessation is one of the primary strategies applied to reduce tobacco use among patients with histories of heart disease (Blane et al., 2017). Reducing tobacco use can minimize smoking mortality and morbidity.

Problem Statement

Tobacco smoking accounts for more than 6 million annual deaths worldwide and causes substantial morbidities related to CVD (Roy et al., 2017). In the United States, cigarette smoking causes more than 480,000 deaths annually, including over 41,000 deaths linked to secondhand smoke exposure (CDC, 2021). Researchers have associated smoking with blood vessel damage that increases cardiac events' risk (Li et al., 2017). Gonzales et al. (2020) established that patients who received smoking cessation interventions were more likely to abstain from tobacco use than control subjects. Currently, those in the clinical setting provide standard education to promote tobacco cessation among patients with heart diseases with smoking histories. However, increased tobacco dependence continues among heart disease patients. The gap in practice may be

addressed by conducting an integrative review to identify the effectiveness of smoking cessation intervention programs in heart disease patient populations toward reducing tobacco use.

The challenge faced in the primary care setting was that smoking cessation was regarded as the most effective action-based approach for heart disease patients who smoked; however, more than 50% of cardiac patients continued using tobacco after admission (de Hoog et al., 2016). Determining the self-efficacy of the intention to quit is essential to establish how effective smoking cessation is for heart disease patients. The smoking cessation intervention approach is integral for influencing cardiovascular patients' intentions to quit tobacco use and self-efficacy (Busch et al., 2017; de Hoog et al., 2016). Additionally, smoking increases the risk of cardiovascular events and sudden cardiac death (Reid et al., 2018). The utilization of smoking cessation programs can reduce cardiovascular risks and related complications and comorbidities. Reid et al. (2018) recommended implementing smoking cessation interventions in hospital settings to improve patients' outcomes. Quitting smoking is a priority for patients with acute coronary syndromes, and tobacco use cessation can reduce cardiovascular mortality and morbidity while improving the quality of life.

Purpose of the Project

The purpose of conducting the integrative review was to assess and appraise current evidence for the effectiveness of smoking cessation intervention programs in cardiovascular patient populations in reducing tobacco use. Using the literature review matrix, previous research papers were synthesized and assessed on smoking cessation programs for patient with a history of heart disease and smoking.

Purpose and Review Question

For this integrative review, the focus of interest entailed determining the effectiveness of smoking cessation intervention programs in CVD patient populations toward reducing tobacco use. Factors impacting smoking cessation were examined, and effective interventions were discussed. The review question was the following: What is the effectiveness of smoking cessation intervention programs in cardiovascular patient populations in reducing tobacco use?

Literature Review

Smoking is a significant issue, and various studies have been published on multiple cessation programs. The primary focus of the literature review entailed evaluating existing studies on smoking cessation programs and the effects on tobacco use. Section Two of the literature review covers the search strategy applied, critical appraisal and synthesis, the conceptual framework, and a summary.

Search Strategy

A comprehensive literature search was conducted using scholarly and peer-reviewed nursing journal databases. The databases included MEDLINE, PsycINFO, Google Scholar, Cochrane Database of Systematic Reviews, and PubMed. The search terms included *smoking cessation, heart diseases, history of smoking and heart diseases, education programs for smoking,* and *tobacco use*. The Boolean operator AND was included when conducting the search to filter the findings. The initial search from PubMed generated 32 articles, including 13 from Google Scholar, 11 from Medline, seven from Cochrane, and five from PsycINFO. Fifteen articles were generated from databases that aligned with the inclusion and exclusion criteria.

Inclusion and Exclusion Criteria

The inclusion criteria comprised scholarly and peer-reviewed articles (a) published between 2016 and 2020, (b) written in the English language, (d) targeting smoking cessation interventions and heart diseases, and (e) written in full text. All articles were excluded from the list if published before 2016, not written in English, not peer-reviewed studies, and not in full text. Also, all publications lacking original data, including editorials and opinion pieces, were excluded. Fifteen articles met the inclusion and exclusion criteria; thus, these were included in the project proposal's preliminary literature review.

Synthesis

Nine studies were systematic reviews (Barth et al., 2016; Chehab & Dakik, 2018; Gupta et al., 2019; Hyndman et al., 2019; Lee & Son, 2019; Prochaska & Benowitz, 2016; Rice et al., 2017; Semwal et al., 2019; Suissa et al., 2017). The articles also contained three observational cross-sectional studies (Blane et al., 2017; Mullen et al., 2017; Snaterse et al., 2018), one longitudinal study (de Hoog et al., 2016), one cohort study (Goettler et al., 2020), and one mixed approach (Patterson et al., 2017). Table 2 shows the articles' appraisals in an evaluation matrix, indicating each article’s strengths, weaknesses, and levels of evidence (see Appendix A).

Cigarette smoking is a causative factor for coronary artery disease and contributes to thrombus formation, endothelial dysfunction, and atherosclerosis (Barth et al., 2016; de Hoog et al., 2016). According to Mullen et al. (2017), integrating hospital-initiated smoking cessation intervention played a significant role in reducing patients' mortality and health issues. The patients supported by the intervention experienced significantly lower rates of all-cause readmissions, all-cause emergency department (ED) visits, and smoking-related rehospitalizations. Smoking cessation is recommended to reduce cardiovascular-related

complications and mortality risks (Barth et al., 2016; Mullen et al., 2017; Prochaska & Benowitz, 2016). A meta-analysis has indicated that individual and telephone counseling, Varenicline, and bupropion are efficacious for CVD patients' smoking cessation (Suissa et al., 2017). Chehab and Dakik (2018) contended that pharmacological interventions were effective in smoking cessation; however, the best findings for smoking cessation entailed using combinations of behavioral and pharmacological interventions.

A consensus shows that education-based programs can enhance smoking cessation among patients with heart diseases (Hyndman et al., 2019; Semwal et al., 2019). Education can improve healthcare providers' skills and knowledge to impact smoking cessation programs positively. De Hoog et al. (2016) found that action-based coping plans increased heart disease patients' intentions to quit tobacco use after engaging in a smoking cessation program. According to Blane et al. (2017), patients with tobacco use problems required smoking cessation support to change their habits. Goettler et al. (2020) established that patients who attended a cardiac rehabilitation program following a CVD event reported a high likelihood of smoking cessation. Although smoking cessation interventions' efficacies were well established, the effectiveness in patients with heart diseases remained unclear (Suissa et al., 2017). The identified literature gap was addressed through this integrative review by evaluating the effectiveness of smoking cessation intervention programs in heart disease patients in reducing tobacco use.

The relationship between smoking and the incidence of heart failure is direct, increasing the risk of death. Lee and Son (2019) found that smokers aged 18 years had a higher risk of heart failure than nonsmokers. Similarly, Gupta et al. (2019) found that smokeless tobacco increased the risk of CHD; as a result, the reserachers recommended smoking cessation interventions. Additionally, the study findings showed that cessation efforts were required for smokeless

tobacco products because of a link to fatal cardiac events. Rice et al. (2017) established that nursing-delivered smoking cessation interventions were effective in increasing patient success in quitting tobacco use.

Researchers agreed that smoking had adverse effects on persons with a history of tobacco use; thus, such researchers recommended smoking cessation (Gupta et al., 2019; Lee & Son, 2019; Rice et al., 2017). Leaders of smoking cessation programs have the role of increasing knowledge and fostering positive attitudes among tobacco users (Patterson et al., 2017). A study conducted in Europe using the EUROASPIRE IV survey showed that smoking cessation encouraged more than 50% of the participants to quit tobacco use (Snaterse et al., 2018). The findings further indicated that successful quitters received counseling while under a cardiac rehabilitation program, which allowed them to make healthy lifestyle changes (Patterson et al., 2017; Snaterse et al., 2018).

SECTION TWO: REVIEW OF THE LITERATURE

Conceptual Framework/Model

The current study used suggestions by Whittemore and Knafl (2005) as the conceptual framework for this integrative review. This framework comprised five distinct phases: (a) problem identification, (b) data collection or literature search, (c) evaluation of data, (d) data analysis, and (e) interpretation and presentation of results. Phase 1 entailed identifying the problem under study, and this integrative review targeted the effectiveness of smoking cessation interventions in persons with heart disease. Phase 2 comprised a literature search using various databases, including MEDLINE, PsycINFO, Cochrane Database of Systematic Reviews, and PubMed (Whittemore & Knafl, 2005). Phase 3 was the data evaluation and entailed extracting methodological characteristics of primary studies included in the meta-analysis and systematic reviews. Evaluating the quality of primary sources in the integrative review was included to determine the selected articles' quality. Data analysis entailed extracting findings from primary sources.

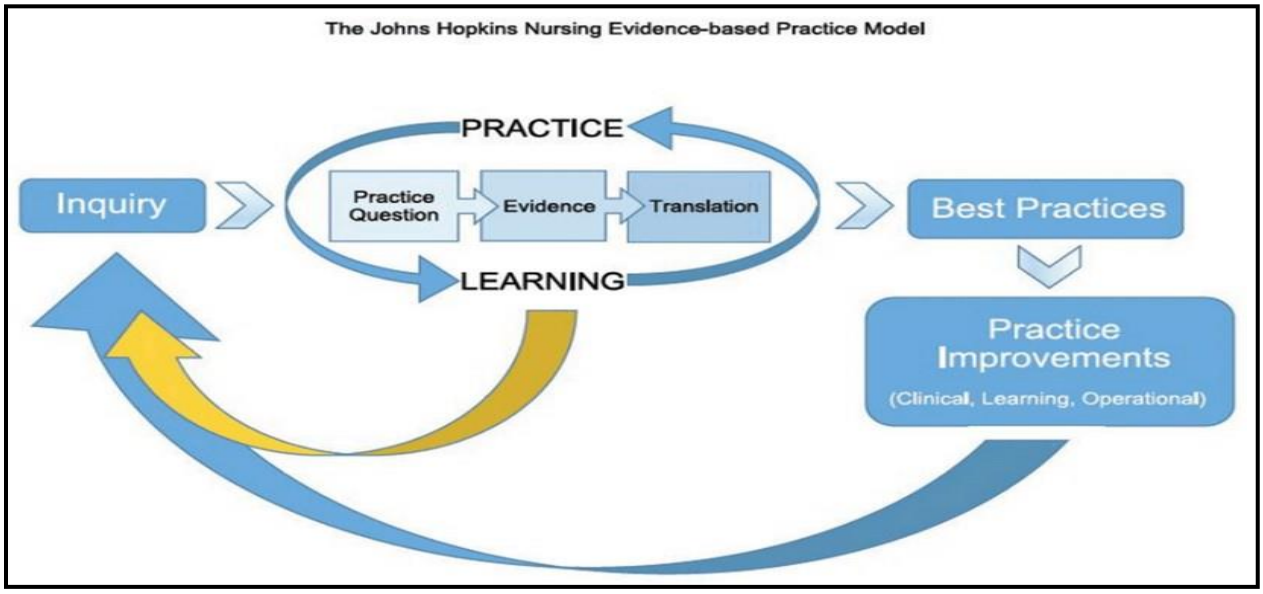
Phase 4 entailed data display by converting the extracted data into subgroups. The next phase of data analysis was the comparison, which entailed an interactive process of evaluating the displays of primary sources (Whittemore & Knafl, 2005). The rationale was to identify themes, patterns, and relationships in the collected data. The final process of data analysis entailed conclusion drawing and verification with abstraction and subsuming of patterns, themes, and relations. The fifth phase of the integrative reviews was the presentation of the findings in a table and diagrammatic form. Figure 1 shows the project's conceptual framework (see Appendix B).

Theoretical Framework

The Johns Hopkins Nursing Evidence-Based Practice (JHNEBP) model (see Figure 1) was applied in the integrative review and provided guidance for the search and translation of evidence (see Dang & Dearholt, 2017). The phases of the three-step model included practice question, evidence, and translation. The first step entailed the formulation question to be resolved using EBP and current literature findings. The second step included finding the evidence to be reviewed and synthesized from reliable electronic and online databases (Dang & Dearholt, 2017). The major elements of the practice question were considered during the search process. The doctoral student focused on Google Scholar, Cochrane Database of Systematic Reviews, and PubMed databases when searching for peer-reviewed and scholarly evidence. The third phase was the translation of evidence to establish the main findings and gaps in the literature. The model helped establish the evidence level and quality of the findings when answering the integrative review question.

Figure 1

Johns Hopkins Nursing Evidence-Based Practice Model



Note. Adapted from *Johns Hopkins nursing evidence-based practice: Model and guidelines* (p. 172), by D. Dang and S. Dearholt, 2017, Sigma Theta Tau International. Copyright 2017 by the Sigma Theta Tau International.

Summary

Tobacco use is a leading cause of heart disease and CVD-related complications. Patients with CVD and histories of smoking have high risks of cardiac arrest and increased premature death prevalence. The findings from the reviewed literature indicated that using education-based programs improved smoking cessation. Additionally, tobacco dependence education was important for preparing nurses and supporting patients with smoking cessation.

The JNEBP model was applied in the integrative review to offer guidance for the search and translation of evidence. The three phases of the JHNEBP model included practice question, evidence, and translation. Whittemore and Knafl (2005) provided the conceptual framework used in the integrative review. The purpose of conducting the integrative review was to assess and appraise current evidence for the effectiveness of smoking cessation intervention programs in cardiovascular patient populations toward reducing tobacco use.

SECTION THREE: METHODOLOGY

Design

The purpose of conducting the project was to identify the effective interventions for smoking cessation with positive outcomes on CVD patients. The project was an integrative review conducted to assess and appraise current evidence for the effectiveness of smoking cessation programs in cardiovascular patient populations in reducing tobacco use. An additional outcome of interest was the effectiveness of the intervention on improving health outcomes in patients with cardiovascular disease. In the review, the DNP student synthesized and analyzed the relevant studies published on smoking cessation programs on heart patients with histories of smoking, summarizing previous research.

The review involved qualitative and quantitative studies on smoking cessation programs for cardiovascular patients. In this section, the methods and procedures used by the DNP student to conduct the integrative review are presented. The methods used to search, screen, select, and sort the literature are presented. Additionally, the strategies for appraisal and reporting the review results are presented.

Measurable Outcomes

Both dependent and independent variables guided the integrative review. Smoking cessation was the dependent variable. The independent variables included outcome expectation, perceived behavioral change, and the intention to quit tobacco use after smoking cessation interventions (Atmojo et al., 2018).

Setting

The project was based on an integrative literature review; therefore, no practicum setting was applicable. The rationale for conducting the integrative review was to establish the

effectiveness of smoking cessation intervention programs in reducing tobacco use among patients diagnosed with heart diseases. The current challenge faced in the primary care setting is that more than 50% of cardiac patients use tobacco after admission regardless of the effectiveness of smoking cessation (de Hoog et al., 2016). The findings of the integrative review will significantly contribute to the nursing practice. Nurses can use the results to improve their knowledge about how smoking cessation interventions may influence heart disease populations.

Population

The participants of this DNP project included three nurse practitioners part of the expert panel for the DNP project. The practitioners roles were to provide guidance throughout the DNP project and help with reviewing the final manuscript.

Ethical Considerations

Ethical requirements were necessary when performing an integrative literature review project. The DNP student obtained ethical approval from relevant authorities. Approval was obtained from the DNP Project Committee and Liberty University's Institutional Review Board (IRB) through the standard requirement procedures. The IRB approval did not permit the collection and analysis of data from the integrative literature review. In this integrative literature review project, a survey or interview for individuals was not used. There was no collection of any form of data from human subjects. All the reviewed studies were referenced in the proposal as part of ensuring ethical considerations.

Intervention

This section provides a concise step-by-step description of the DNP project process from beginning to end. Seven main steps were followed in the process of writing and completing the DNP project. These steps included identifying the area of interest; developing a written proposal;

obtaining IRB approval; collecting data; writing the final project; and presenting, submitting, and disseminating the findings.

Step 1: Identifying the Area of Interest

The DNP student identified the area of interest and then submitted the proposal to the DNP proposal committee for approval. After approval from the DNP proposal committee, a DNP project chair was assigned. The identified topic was "Effectiveness of the Smoking Cessation in Heart Disease Patients: An Integrative Review."

Step 2: Developing the Written Proposal

The purpose of writing the proposal was to demonstrate the ability to conduct an evidence-based project by following a scientific process. The DNP student submitted the completed written proposal to the DNP chair for review and approval. The proposal was reviewed against the scholarly project proposal rubric, feedback was provided, and recommended changes were completed. The sections completed in the project proposal included the introduction, literature review, and project methodology.

Step 3: Obtaining IRB Approval

The DNP student obtained ethical approval from Liberty University's IRB. The IRB approval only permitted the collection and analysis of the integrative literature review data because no human subjects were utilized.

Step 4: Executing the Project and Collecting Data

The data collection entailed an integrative review of articles published between 2016 and 2020 that supported smoking cessation interventions. The databases searched included PubMed, Cumulative Index to Nursing and Allied Health Literature, Agency for Health Care Research and Quality Patient Safety Network, and the Public Library of Science. The DNP student used the

PRISMA as the reporting guideline for the review. The articles were screened, appraised, sorted, and presented in a literature review matrix.

Step 5: Writing the Final Project

The final report of the DNP project was a scholarly paper that followed a specific format provided by Liberty University. In addition to Section One, Two, Three, and Four included in the original proposal, the final report included the title page, abstract, table of contents, Section Five, references, and appendices.

Step 6: Orally Presenting and Submitting the Completed Project Copies

During this phase, the DNP student developed and presented a 30-minute presentation of the project using PowerPoint. Also, the final copies were submitted to the scholarly project's chair.

Step 7: Disseminating the DNP Project

Dissemination of the DNP project will include center presentations at cardiovascular nursing symposia and community health promotion events. The project will be distributed in institutions, such as the Veteran Administration Center for Information Dissemination and Educational Resources.

Data Collection

In conducting the integrated review, the DNP student searched the Internet to find articles published between 2016 and 2020 that showed support for smoking cessation interventions. The search was conducted on specific databases, in addition to backward reference searching. Some referenced materials in the identified studies were hand-searched based on meeting the inclusion criteria and being unlisted in the databases considered. The databases searched included PubMed, the Cumulative Index to Nursing and Allied Health Literature, the Agency for Health

Care Research and Quality Patient Safety Network, and the Public Library of Science. These databases were appropriate because each was accessible to the DNP student and contained peer-reviewed medical, nursing, and allied health literature. The literature in these databases included articles from scholarly journals published by multiple publishers, as well as conference proceedings reports.

The literature search was conducted using both natural language and keyword search strategies. The search, using keywords, was conducted in the three databases followed by natural language use and then a backward reference search. Using natural language captures the term despite whether specific keywords are used in the search (Toronto & Remington, 2020). Therefore, conducting a literature search using natural language yields more results than when specific keywords are used, although the latter is more structured. Using both strategies optimized the search results by ensuring that as much as possible was found and that the literature was presented in a systematic manner.

The search outcomes for each keyword and database were saved and documented to aid in the study selection. The search was limited to studies published between 2016 and 2020 because of the validity of the intervention. The articles were also limited to primary studies conducted either qualitatively or quantitatively. All the saved database search results were further screened to determine which studies met the integrative review eligibility criteria. The screening entailed reviewing the study titles to eliminate duplicates and remove those that did not represent smoking cessation interventions. The next screening stage was conducted by reviewing the abstracts of the studies to clarify further the relevance to the current study topic. At the elimination stage, all the excluded studies were documented, as well as the potentially relevant ones retained. Further screening was continued later for the full articles. Additional search

methods, such as hand searching and backward reference searching, were applied after the initial screenings of the article topics and abstracts. The search was conducted after both natural language and keyword-searched literature had been screened to facilitate the inclusion of unique materials in the integrative review.

In the event studies were referenced in the articles found using keyword searches not included in the four databases searched, a natural language search was conducted. In this stage, backward reference searches were conducted, where the studies cited that contained evidence on smoking cessation interventions were sought. The studies were reviewed to establish if available in full text. The studies were then documented based on inclusion in the integrative review. The search was conducted using the Google Scholar search engine.

Tools

Reporting guidelines refer to the checklist of items that should be included in the integrative review report (Toronto & Remington, 2020). According to the National Library of Medicine (2015), reporting guidelines specify the minimum set of items reported to provide a clear and transparent account of the research process and study findings. The DNP student used the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) as the reporting guideline for the review. The PRISMA guideline is preferred because of its ability to minimize bias in the final reporting. The PRISMA focuses on how the review is reported rather than on how the studies are appraised, ensuring that only the minimum description of characteristics is used while increasing the quality and transparency of the review (Moher et al., 2015).

The PRISMA reporting guidelines consist of a flow diagram and checklist of items essential to clear, transparent reporting (Moher et al., 2015). The flow diagram presents the

processes of study article identification, screening, and selection. Instead of using the 27 original checklist items in the PRISMA guideline, the PRISMA guideline authors used the 22 items recommended in the PRISMA extension for scoping reviews (PRISMA-ScR). The 22-item checklist addressed the final review report, including the outcomes of the appraisal. The PRISMA-ScR checklist was developed by a 24-member expert panel and two search leads that followed published guidance from the Enhancing the Quality and Transparency of Health Research Network. The checklist consists of 20 essential and two optional reporting items. The checklist is also more appropriate for an integrative review (Tricco et al., 2018).

The appraisal of each study article in the review was reported. The report included a description of how each article was appraised, the criteria used to determine quality, and the appraisal results. The report also included documentation of any article excluded based on the quality appraisal. The appraisal notation was entered into a matrix to support the credibility of the analysis and review findings. The matrix was constructed to represent the outcome of the appraisal and contained columns for the study title, design and method, sampling technique and sample size used, methods for data collection, results, and relevance to the review. Additionally, a discussion of the appraisal outcome was presented.

The type of quality appraisal tool affects the quality of an integrative review and the conclusions. The DNP student used critical appraisal to evaluate the evidence using structured questions and a checklist. The rapid critical appraisal checklists by Melnyk and Fineout-Overholt (2015) were used to appraise the studies in the review. Critical appraisal checklists are considered appropriate tools for novice and expert consumers of evidence (Melnyk & Fineout-Overholt, 2015). Melnyk and Fineout-Overholt (2015) proposed a general appraisal of all the studies using the PICOT question; a general overview of the study regarding the purpose, design,

and sampling; and then the rapid critical appraisal checklists. The checklists are recommended for descriptive studies, evidence-based practice implementation or quality improvement projects, cohort studies, randomized controlled trials, systematic reviews of clinical interventions or treatments, qualitative evidence, and evidence-based guidelines (Melnyk & Fineout-Overholt, 2015).

The rapid appraisal checklists were the most appropriate for this review because of being developed for evidence-based practical use (Melnyk & Fineout-Overholt, 2015). Therefore, using the checklists to appraise the quality of evidence was more appropriate for identifying the intervention best suited for evidence-based practical application, which was the goal of the review. The checklists were used to appraise both the qualitative and quantitative studies. The goal was to determine the type of smoking cessation program selected as the most effective for cardiovascular patients.

Screening

The identified articles were screened for relevance by considering the titles and abstracts. At this stage, the eligibility criteria were not considered; instead, the DNP student sought to locate irrelevant studies by skimming through titles and abstracts (see Toronto & Remington, 2020). In the integrative review, the DNP student searched through titles to identify and exempt studies that did not include at least one of the phrases in the search keywords. The articles that remained after the first screening were then reviewed based on the abstracts, and those that did not include cardiovascular disease patients were exempted from the review. The second screening significantly reduced the number of articles in the study when the hand and backward reference searching commenced.

Selection

After the abstracts were reviewed and only the relevant studies remained in the review, the DNP student selected the studies that met the eligibility criteria for full text. During the initial search, some eligibility criteria, such as year and language of publishing, were considered. In this stage, the studies remaining in the review already met the criteria for relevance, were less than five years old, and were published in the English language. Further screening was conducted to only select the articles available in full text. The selected articles were documented and saved in a different file with links to the full text for further reading and screening.

Sorting

The final stage of the screening involved sorting the articles based on the evidence. In this stage, the DNP student read through all the remaining articles and classified each according to the type of evidence, such as primary, secondary, qualitative, quantitative, or journal articles (among others). The sorting facilitated further identification of duplicate evidence, where the same report might be published in different formats. All the articles were sorted into the different categories of evidence relevant to the review. Any duplicates were eliminated; however, all the elimination was usually completed when the DNP student got to the sorting stage (see Toronto & Remington, 2020). Therefore, the sorting stage presented the classification of the evidence.

The screening and selection outcomes included removing most identified literature. The processes were documented visually using the PRISMA flowchart, which highlighted the number of studies found and elimination processes during the different stages until the final number of reviewed studies was reached (Moher et al., 2015). The Covalence software was helpful in developing the PRISMA flowchart, although the DNP student only used the format to develop the chart relevant for the review.

SECTION FOUR: RESULTS

Data Analysis

The entire search process and outcomes were documented. Documenting the search report facilitates reproducibility by other researchers (Toronto & Remington, 2020). The initial stages of the review included screening the search outcomes to establish if the identified articles met the eligibility criteria for age and relevance to the topic, were not duplicates, and were available in full text. The Covidence software was used to screen the articles from the three databases and manage the search results. The software offered a free first trial and was preferred because it enabled adding citations from multiple sources, extracting data extraction, and creating a PRISMA flowchart (see Hansen, 2021).

The article citations were listed in a table column, with the adjacent columns containing information on whether the article met the criteria for relevance, uniqueness, and availability in full text. All the search results underwent screening, selecting, and sorting to identify the articles used in the review. Toronto and Remington (2020) recommended piloting each of the three steps, including screening, sorting, and selecting, before completion. The DNP student piloted each step and documented the entire process of finding data for the review. The DNP student also developed a PRISMA flowchart to display the flow of the articles through the screening and selection processes.

Findings

Tobacco and cigarette smoking cause respiratory, cardiovascular, and various cancer diseases that lead to death (CDC, 2020). Over 800,000 U.S. CVD deaths are reported every year, with 20% of the mortality being tobacco or cigarette smokers (Food and Drug Administration [FDA], 2018). According to an article published by the U.S. Department of Health and Human

Services (USDHHS), smoking cessation programs have been effective, as there are more nonsmokers than smokers. Moreover, 67% of smokers have expressed the desire to quit smoking. Although 50% of smokers try to quit each year, only 10% manage to quit smoking (USDHHS, 2020).

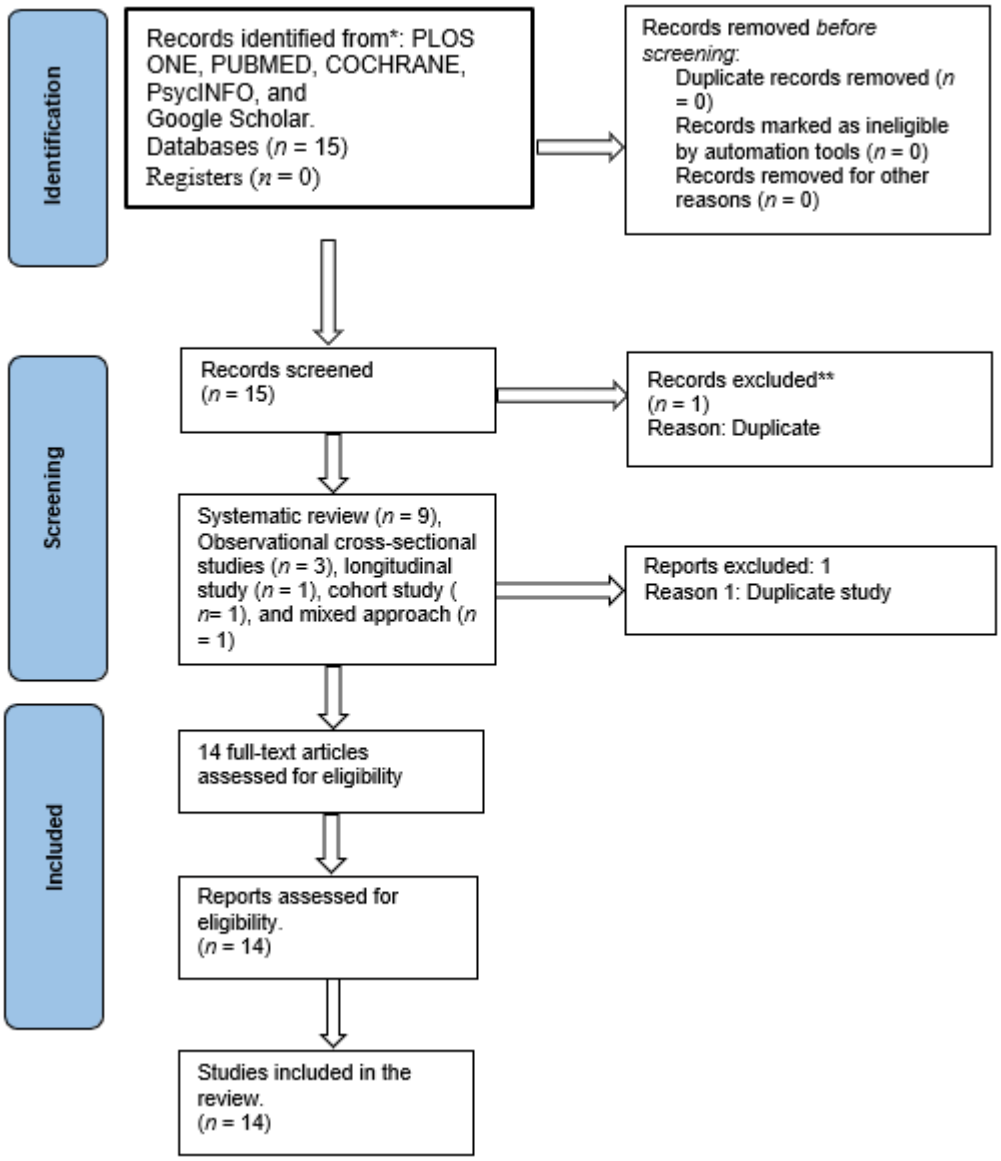
The project was designed to assess the effectiveness of smoking cessation in heart disease patients through an integrative review of articles and studies related to the topic. The objective of the study was to evaluate the current evidence for the effectiveness of smoking cessation intervention programs in CVD patient populations in reducing smoking. The clinical question used to guide the project was the following: What is the effectiveness of smoking cessation intervention programs in the CVD patient population in reducing tobacco use? This section presents the results of the integrative review of the articles selected.

Screening

A total of 15 articles were selected from PubMed, COCHRANE, PLOS One, Google Scholar, and PsycINFO. Fifteen articles were imported in the Covidence software, one was eliminated, and 14 were eligible for inclusion in the study, with the results displayed in a PRISMA shown in Figure 2.

Figure 2

PRISMA Flowchart of the Screening Stage of the Articles Selected



Note. Adapted from "The integrative review: Updated methodology," by R. Whittemore and K. Knafl, 2005, *Journal of Advanced Nursing*, 52(5), p. 546 (https://doi.org/10.1111/j.1365-2648.2005.03621.x). Copyright 2005 by Wiley & Sons.

Inclusion

Fourteen articles met the criteria for relevance, full-text availability, and uniqueness, as indicated in Table 2.

Table 2

Thematic Analysis Table

Article citation	Type of study	Purpose of the study	Results
Barth, J., Jacob, T., Daha, I., & Critchley, J. A. (2016). Psychosocial interventions for smoking cessation in patients with coronary heart disease. *Cochrane Database of Systematic Reviews, 7*(CD006886), 1-105. https://doi.org/10.1002/14651858.CD006886.pub2.	Systematic review	Evaluate the effectiveness of the psychosocial interventions for smoking cessation in patients diagnosed with coronary heart disease in the short and long term and moderators of treatment effects used for stratification.	There was a positive effect of interventions on abstinence after 6 to 12 months (risk ratio (RR) 1.22, 95% confidence interval (CI) 1.13 to 1.32, I^2 54%; abstinence rate treatment group = 46%, abstinence rate control group 37.4.
Blane, D. N., Mackay, D., Guthrie, B., & Mercer, S. W. (2017). Smoking cessation interventions for patients with coronary heart disease and comorbidities: An observational cross-sectional study in primary care. *The British Journal of General Practice*, *67*(655), e118–e129. https://doi.org/10.3399/bjgp16X688405	Cross-sectional study	The study's objective was to determine the correlation between diverse patterns of comorbidity and smoking rates and smoking cessation interventions in a primary care setting.	The most deprived smoking cessation interventional advice quartile had a higher odds ratio of current smokers than those receiving the intervention OR [2.76; 95% CI [2.49- 3.05].
Chehab, O. M., & Dakik, H. A. (2018). Interventions for smoking cessation in patients admitted with acute coronary syndrome: A review. *Postgraduate Medical Journal*, *94*(1108), 116–120. https://doi.org/10.1136/postgradmedj-2017-135040.	Systematic review	Assessing the effectiveness of pharmacological, behavioral, or a combination of the two smoking interventions among patients admitted with the acute coronary syndrome.	A combination of the behavioral and pharmacological smoking interventions was more effective than individual programs.
de Hoog, N., Bolman, C., Berndt, N., Kers, E., Mudde, A., de Vries, H., & Lechner, L. (2016). Smoking cessation in cardiac patients: the influence of action plans, coping plans, and self-efficacy on quitting smoking. *Health Education Research*, *31*(3), 350–362. https://doi.org/10.1093/her/cyv100	Longitudinal study	The study's objective was to review the predictors of the behavioral relationship in smoking cessation in cardiac patients.	There was a positive correlation between the predictors of behavioral change. 31% of the respondents had not smoked in 6 months' time, and 43% had not smoked in the previous seven days.

Article citation	Type of study	Purpose of the study	Results
Goettler, D., Wagner, M., Faller, H., Kotseva, K., Wood, D., Leyh, R., Ertl, G., Karmann, W., Heuschmann, P. U., Störk, S., & German EUROASPIRE IV Collaborators (2020). Factors associated with smoking cessation in patients with coronary heart disease: A cohort analysis of the German subset of EuroAspire IV survey. *BMC Cardiovascular Disorders*, *20*(1), 152-165. https://doi.org/10.1186/s12872-020-01429-w	Cross-sectional study	The aim of the study was to assess smoking cessation patterns and determine factors associated with smoking cessation in patients with established CHD.	Approximately 63% of the patients had quit smoking after attending the cardiac rehabilitation program, and quitters (37.5%) instead of current smokers (20.5%) attended most of the classes.
Gupta, R., Gupta, S., Sharma, S., Sinha, D. N., & Mehrotra, R. (2019). Risk of coronary heart disease among smokeless tobacco users: Results of Systematic review and meta-analysis of global data. *Nicotine & Tobacco Research*, *21*(1), 25–31. https://doi.org/10.1093/ntr/nty002	Systematic review	Examining the risk of CHD among adults ever-users of smokeless tobacco (SLT).	A summary of the CHD risks in SLT users was not statistically significant positive (1.05, 95% CI [0.96- 1.15]).
Hyndman, K., Thomas, R. E., Schira, H. R., Bradley, J., Chachula, K., Patterson, S. K., & Compton, S. M. (2019). The effectiveness of tobacco dependence education in health professional students' practice: A systematic review and meta-analysis of randomized controlled trials. *International Journal of Environmental Research and Public Health*, *16*(21), 4158. https://doi.org/10.3390/ijerph16214158.	Systematic review	The aim of the study was to conduct a systematic review to evaluate the effectiveness of tobacco dependence education versus usual or no tobacco dependence education on entry-level health professional student practice and client smoking cessation.	Tobacco dependence counselling resulted in 78 out of a 1000 quitting smoking in six months (OR 2.02, 95% CI [1.49- 2.74], $r^2 = 0$, $p = 0.76$; $p < 0.000001$).
Lee, H., & Son, Y. J. (2019). Influence of smoking status on risk of incident heart failure: A systematic review and meta-analysis of prospective cohort studies. *International Journal of Environmental Research and Public Health*, *16*(15), 2697-2707. https://doi.org/10.3390/ijerph16152697	Cohort study	Identifying the relationship of smoking status with incident risk of heart failure.	Current smokers had a high hazard ratio (H.R.) of heart failure (H.R. = 1.209, 95% CI [1.470- 1.761]). Former smokers had a higher risk of heart failure than those who never smoked (H.R. = 1.209. 95% CI [1.084- 1.348]).

Article citation	Type of study	Purpose of the study	Results
Mullen, K. A., Manuel, D. G., Hawken, S. J., Pipe, A. L., Coyle, D., Hobler, L. A., Younger, J., Wells, G. A., & Reid, R. D. (2017). Effectiveness of a hospital-initiated smoking cessation program: 2-year health and healthcare outcomes. *Tobacco Control*, *26*(3), 293–299. https://doi.org/10.1136/tobaccocontrol-2015-052728		The aim of the study was to ascertain the implementation of a hospital-initiated smoking cessation intervention would decrease deaths and downstream healthcare usage.	The intervention group had the lowest smoking-related, all-cause readmissions and emergency department visit rates at all the points. The highest absolute risk reduction (ARR) was observed for all-cause readmission at 30 days (ARR, 6.1%, $p < 0.001$).
Patterson, F., Zaslav, D. S., Kolman-Taddeo, D., Cuesta, H., Morrison, M., Leone, F. T., & Satti, A. (2017). Smoking cessation in pulmonary care subjects: A mixed-methods analysis of treatment-seeking participation and preferences. *Respiratory Care*, *62*(2), 179–192. https://doi.org/10.4187/respcare.04958	A mixed-method approach	The objective of the study was to identify barriers and predictors to smoking cessation in African American population.	58% of the pulmonary participants enrolled in smoking cessation classes, and 16% attended all the classes.
Prochaska, J. J., & Benowitz, N. L. (2016). Smoking cessation and the cardiovascular patient. *Current Opinion in Cardiology*, *30*(5), 506–511. https://doi.org/10.1097/HCO.0000000000000204	Systematic review	Assessing smoking cessation interventions among cardiovascular disease patients and the health outcome.	A combination of tobacco reduction use interventions is effective and includes fewer risks.
Rice, V. H., Heath, L., Livingstone-Banks, J., & Hartmann-Boyce, J. (2017). Nursing interventions for smoking cessation. *The Cochrane Database of Systematic Reviews*, *12*(12), CD001188. https://doi.org/10.1002/14651858.CD001188.pub5	Systematic review	To determine the effectiveness of nursing delivered smoking cessation interventions in adults.	The nursing-based intervention increased the probability of quitting smoking (relative risk (RR 1.29, 95% CI [1.21- 1.38]), and statistical heterogeneity was moderate ($I^2 = 50\%$).

Article citation	Type of study	Purpose of the study	Results
Snaterse, M., Deckers, J. W., Lenzen, M. J., Jorstad, H. T., De Bacquer, D., Peters, R., Jennings, C., Kotseva, K., Scholte Op Reimer, W., & EUROASPIRE Investigators (2018). Smoking cessation in European patients with coronary heart disease. Results from the EUROASPIRE IV survey: A registry from the European Society of Cardiology. *International Journal of Cardiology*, *258*, 1–6. https://doi.org/10.1016/j.ijcard.2018.01.064		To examine smoking cessation rates in CHD patients and the traits of successful smoking quitters.	31% of the smokers enrolled for the intervention recruitment event; 15% in Finland, and 57% in Cyprus. 56% of the successful quitters were advised on smoking cessation and attended the cardiac rehabilitation program.
Suissa, K., Larivière, J., Eisenberg, M. J., Eberg, M., Gore, G. C., Grad, R., Joseph, L., Reynier, P. M., & Filion, K. B. (2017). Efficacy and safety of smoking cessation interventions in patients with cardiovascular disease: A network meta-analysis of randomized controlled trials. Circulation. Cardiovascular Quality and Outcomes, 10(1), e002458. https://doi.org/10.1161/CIRCOUTCOMES.115.002458	Randomized control study.	The article's aim was to appraise the safety and efficacy of pharmacological and behavioral smoking cessation interventions in CVD patients.	In pharmacological interventions, varenicline (RR, 2.64, 95% CI [1.34 – 5.21]) and bupropion (RR: 1.42, 95% CI [1.01- 2.01]) were more effective, telephone therapy (RR: 1.47, 95% CI [1.15- 1.88]) and individual counselling (RR: 1.64, 95% CI [1.17- 2.28]) were more effective than usual care.

SECTION FIVE: DISCUSSION

The smoking cessation interventions included pharmacological, behavioral, telephone, and nursing-based interventions. The interventions effectively aided the CVD and CHD patients with quitting smoking and abstaining from tobacco dependency. In addition, there were short-term and long-term follow-up sessions that assessed the abstinence process of smoking cessation among the participants. Behavioral interventions were effective and had a statistically significant effect on smoking cessation; RR: 1.23, 95% CI (1.12 to 1.34), RR: 1.47, 95% CI (1.15 to 1.88), and RR 1.66, 95% CI (1.42 to 1.9). Pharmacological interventions were also efficacious in abstaining from tobacco use as the studies reported statistical significance, particularly varenicline; RR: 2.64 95% CI (1.34 to 5.21) and Bupropion; RR: 1.42, 95% CI (1.01 to 2.01). Individual counseling and telephone therapy interventions were also effective in smoking cessation among the participants; RR: 1.64, 95% CI (1.17 to 2.28) and RR: 1.47 95% CI (1.15 to 1.88), respectively.

A combination of pharmacological and behavioral therapy was most effective and safe, having the highest likelihood of abstinence compared to other therapies and interventions implemented; RR 1.83, 95% CI (1.68 to 1.98). Initiating smoking cessation aided in reducing hospital readmission, hence saving on cost and health risks. Based on the results of the articles reviewed, the smoking cessation programs and interventions were effective in aiding the patients with CVD and CHD in quitting tobacco use. Additionally, there was a reduction in hazards and relative risks associated with nicotine dependency. Follow-up sessions, short- and long-term, were essential in assessing the progress of the participants and the efficacy of using the intervention initiated.

Implications for Practice

The findings indicated significant success with smoking cessation among patients diagnosed with CVD and CHD diseases. The practical implications in the study include incorporating smoking cessation interventions in clinical and rehabilitation centers and identifying the predictors of successful abstinence traits. Pharmacological, behavioral, telephone contacts, and individual counseling interventions should be implemented to reduce the number of CVD and CHD patients who smoke. Smoking cessation has health benefits, such as enhancing the quality of life and decreasing mortality rates, and adverse health risks, such as respiratory diseases and cancer. Smoking cessation also minimizes financial burden and the occurrence of heart attacks (CDC, 2020).

The limitations of the study were associated with the type of method applied. The demerits of an integrative review included the combination of different methodologies used in the articles, which led to a lack of rigor, bias, and inaccuracy while reducing the comprehensive summary in analyzing, synthesizing, and drawing of inferences (Temple Universities Libraries, 2021). Bias was reduced by engaging reviewers during the screening process to obtain diverse opinions from professionals on the articles selected.

Sustainability

Continual follow-up at healthcare institutions should occur to evaluate both the interventions implemented and patients in ceasing tobacco use to sustain the project findings. Educational training regarding the importance and selection of the appropriate smoking cessation interventions should be implemented to encourage programs aimed at aiding patients to abstain from tobacco use. The interventions could be initiated in a healthcare facility or a rehabilitation center.

Dissemination Plan

The project findings will be distributed in institutions, such as the Veteran Administration Center for Information Dissemination and Educational Resources, to help healthcare practitioners select cessation interventions for CVD and CHD patients. The findings will also be disseminated in the community through health promotion events and a cardiovascular nursing symposium focusing on the advantages of quitting tobacco use. A copy of the project will be stored in the Liberty University library so that nursing students may access the articles.

Summary

This study was an integrative review assessing the effectiveness of smoking cessation programs in heart disease patients. Tobacco use leads to health risks, such as cardiovascular, respiratory, cancer-related diseases, and mortality. Smoking cessation programs have been developed and implemented to aid in abstinence from tobacco use to enhance patients' health. An integrative review study was performed to appraise the effectiveness of smoking cessation in heart disease patients. Fifteen articles were screened; 14 were eligible and selected for review.

The type of interventions implemented included behavioral, pharmacological, telephone, individual counseling, and nurse-based programs. All the interventions were effective in helping the participants abstain from smoking and tobacco dependency. A PRISMA flowchart was used to display the process of selecting, sorting, screening, and inclusion of the articles. The implication of the project entails adopting the intervention in healthcare and rehabilitation centers to reduce the number of CVD and CHD patient smokers, while sustainability plans include frequent follow-ups and educational training about the importance of quitting tobacco use. The project findings will be disseminated in the Liberty University library, in communities through health promotion events, and at conferences to reach a wider audience.

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Appendix A: Evidence Table

Table A1

Evidence Table

Article	Author (year)	Study purpose/ Objective(s)	Design, sampling method, & subjects	LOE*	Intervention & outcome	Results	Study strengths & limitations
Article 1	Barth et al. (2016).	To evaluate the efficacy of psychosocial interventions for smoking cessation among coronary heart disease patients in short-term and long-term (over 12 months)	A systematic review *N* = 40 RCTs	Level I	Smoking cessation interventions comprised of behavioral therapeutic, use of self-help material and approaches, telephone support.	Psychosocial smoking cessation interventions were more effective in enhancing abstinence up to one year.	The review focused on RCTs in patients diagnosed with CHDs. The studies that focused on the term effects of the intervention were limited.
Article 2	Blane et al. (2017).	To determine the link between different patterns of comorbidity and smoking rates and smoking cessation interventions in primary care for patients with CHD.	An observational cross-sectional study *N* = 81 456 adults with CHD in primary care	Level IV	Approximately 15 395 (91.9%) of the smokers received smoking cessation advice in 15 months. Also, 14.5% received a prescription.	Adults with CHD require cessation support. Smoking cessation is limited among patients with mental illness and CHD	A large dataset (> 80,000 patients with CHD) was used. Lacks the specific smoking cessation advice provided to patients. A cross-sectional study limited the ability to ascertain the causality of the observed associations.
Article 3	Chehab and Dakik (2018).	To review the findings on interventions applied for smoking cessation after acute coronary syndrome (ACS).	Systematic reviews *N* = 5 studies	Level I	Use pharmacological interventions for smoking cessation (nicotine replacement therapy [NRT], Varenicline, and bupropion). Behavioral interventions were	NRT use in ACS had inconclusive results. Also, three trials of bupropion failed to indicate improvement in smoking	The strength is associated with the use of systematic reviews and meta-analyses. It is limited to only five studies.

Article	Author (year)	Study purpose/ Objective(s)	Design, sampling method, & subjects	LOE*	Intervention & outcome	Results	Study strengths & limitations
					also applied. A combination of behavioral and pharmacological interventions for smoking cessation was considered effective.	cessation. However, one trial of Varenicline provided positive results in achieving smoking abstinence. The behavioral interventions found that telephone counseling promoted smoking cessation. The combination of behavioral and pharmacological interventions was more effective.	
Article 4	de Hoog et al. (2016).	To examine the influence of action plans, coping plans, and self-efficacy on quitting and smoking cessation in cardiac patients.	A longitudinal study. *N* = 245 cardiac patients	Level IV	The use of coping plans, action plans After six months (*N* = 184), abstained from smoking.	Findings indicated that 184 continued with abstinence from smoking. Intention to quit smoking six months later	The strength is that the study shows factors influencing the intention to stop smoking. The limitation is that the questionnaire was administrated while patients were at the hospital.
Article 5	Goettler et al. (2020).	To evaluate smoking cessation patterns and establish factors linked with smoking cessation in patients	Cohort studies *N* = 469 participants diagnosed with CHD.	Level IV	Use of telephone interviews and cardiac rehabilitation. About 65 patients (62.5%) quit smoking	Cardiac rehabilitation was linked with smoking cessation (OR	A large sample of participants was used. The study was limited to a small sample for a cohort study.

Article	Author (year)	Study purpose/ Objective(s)	Design, sampling method, & subjects	LOE*	Intervention & outcome	Results	Study strengths & limitations
		with established CVD.			during a telephone interview. Cardiac rehabilitation was linked with smoking cessation 95% CI.	5.19; 95%CI 1.87 to 14.46; *p* = 0.002	
Article 8	Lee & Son (2019).	To identify the link between smoking status with incident risk of heart failure	A systematic review and meta-analysis of prospective cohort studies *N* = 7 studies (42,759 participants)	Level III	Smoking cessation among patients with H.F. Former smokers have a higher risk of H.F. incidence in comparison to nonsmokers (H.R. = 1.209, 95% CI).	Health professionals must support cessation among current smokers because of the high risk of H.F.	The main strength is that large prospective cohort studies were analyzed, identifying the causal link between H.F. incidence risks and smoking status. The article was limited to the meta-analysis of prospective cohort studies with no RCTs
Article 9	Mullen et al. (2017).	To establish if implementing a hospital-initiated smoking cessation intervention reduces mortality.	A cross-sectional study. *N* = 1367 smokers (726 used for cessation intervention, 641 were usual care controls.	Level IV	A -2-effectiveness study was conducted, using an 'Ottawa Model' for Smoking Cessation intervention. The intervention group has lower rates of all0cause readmissions, all-cause emergency department (ED) visits, and smoking-related readmissions.	Smoking cessation did not result in a reduction in mortality within 30 days. However, significant decreases were reported after one year (11.4% vs. 5.4%).	A large sample of 1367 was utilized in the study. The study was limited to only healthcare usage in Ontario, Canada. Also, no information was provided about the specific use of cessation medication.

Article	Author (year)	Study purpose/ Objective(s)	Design, sampling method, & subjects	LOE*	Intervention & outcome	Results	Study strengths & limitations
Article 10	Patterson et al. (2017).	To identify the predictors and barriers to smoking cessation in African American smokers with	A retrospective chart review and qualitative studies. *N* = 253 participants	Level III	A smoking cessation program for the population. Smoking cessation program attendance among African American smokers was poor. Pulmonary care patients wanted to quit smoking	Smoking cessation program is effective in increasing knowledge on quitting tobacco use	A mixed approach was used to address smoking cessation. A relatively low attendance rate exacerbated participation bias.
Article 11	Prochaska & Benowitz (2016).	To review research on the treatment of cigarette smoking, heart patients, and CVD outcomes.	A literature review of evidence. The sample of studies reviewed was omitted.	Level I	Cessation pharmacotherapy on CVD and Varenicline was effective. Telehealth and incentives were used to promote smoking cessation. A meta-analysis of telehealth smoking cessation interventions was effective.	A 2011 meta-analysis of nine trials showed that incentives increased smoking cessation and abstinence. Toll-free telephone questlines allow access to cessation counseling and reduce tobacco use.	The study entails the use of systematic reviews and meta-analyses. The study was limited to studies conducted between 2013 and 2015
Article 12	Rice et al. (2017).	To establish the effectiveness of nursing-delivered smoking cessation interventions among adults.	A systematic review and meta-analysis *N* = 15 studies reviewed	Level I	Combined efforts of healthcare providers in smoking cessation. The smoking cessation interventions with multiple clinician types were more effective (95% CI 1.9).	Smoking cessation lead by nurses resulted in a modest improvement in tobacco use abstinence Healthcare providers are	The quality of evidence used was moderate. Possible methodological limitations of both the systematic review and the RCTs.

Article	Author (year)	Study purpose/ Objective(s)	Design, sampling method, & subjects	LOE*	Intervention & outcome	Results	Study strengths & limitations
						effective in promoting smoking cessation, 95% CI 1.3 to 2.1)	
Article 13	Semwal et al. (2019).	To assess digital education effectiveness compared with different controls in improving knowledge, skills, attitudes, and satisfaction of learners on smoking cessation therapy delivery.	A systematic review and meta-analysis of RCTs *N* = 11 (number of participants, *n* = 2684	Level I	Digital education to deliver smoking cessation therapy. The educational approach showed more significant improvements in knowledge (95% CI).	Digital education is limited in its abilities but can help improve professionals' knowledge for the delivery of smoking cessation therapy.	The authors used systematic review and meta-analysis of RCTs. The study was limited to the use of digital education on smoking cessation.
Article 14	Snaterse et al. (2018).	To investigate smoking cessation rates in CHD patients in Europe and compared to EUROASPIRE survey	EUROASPIRE IV based on a cross-sectional study N= 7998 patients from the EUROASPIRE-IV survey with myocardial infarction coronary revascularization, and unstable angina.	Level III	Smoking cessation intervention. About 31% of the participants were smokers and the rate of successful quitters was relatedly low. Smoking cessation increased with education (CI 95%) and age.	Successful quitters reported being advised (56% vs. 47%, pb.001) and they attended a cardiac rehabilitation program ((81% vs. 75%, pb.01).	A large sample of CHD patients was derived from 24 European nations. Data was limited to EUROASPIRE IV survey, and the findings may not be generalized to individual countries.
Article 15	Suissa et al. (2017).	To evaluate the safety and efficacy of behavioral and pharmacological smoking cessation interventions among patients with CVD	Systematic reviews for meta-analysis of RCTs. Seven pharmacotherapy RCTs (*n* = 2809) and 17 behavioral	Level 1	Behavioral and pharmacological smoking cessation interventions. The pharmacotherapy reviews have greater	Individual and telephone counseling was efficacious when used for smoking	Use of systematic reviews from MEDLINE, EMBASE, Psyc INFO, and Cochrane databases. The limitation of the study was restricted to

Article	Author (year)	Study purpose/ Objective(s)	Design, sampling method, & subjects	LOE*	Intervention & outcome	Results	Study strengths & limitations
		patients using a meta-analysis of RCTs.	intervention RCTs (n = 4666)		smoking abstinence with active treatment.	cessation among CVD patients.	the aggregate data provided in the published articles.

Appendix B: Integrative Review Conceptual Framework

Figure B1

Integrative Review Conceptual Framework

Note. Adapted from Covidence [Computer software], by J. M. Hansen, 2021 (https://www.covidence.org/).

Appendix C: Institutional Review Board

LIBERTY UNIVERSITY INSTITUTIONAL REVIEW BOARD

July 6, 2021

Re: IRB Application - IRB-FY20-21-1 Effectiveness of the Smoking Cessation in Heart Disease Patients: An Integrative Review

The Liberty University Institutional Review Board (IRB) has reviewed your application in accordance with the Office for Human Research Protections (OHRP) and Food and Drug Administration (FDA) regulations and finds your study does not classify as human subjects' research. This means you may begin your project with the data safeguarding methods mentioned in your IRB application.

Decision: No Human Subjects Research

Explanation: Your study is not considered human subjects research for the following reasons:

-It will not involve the collection of identifiable, private information.
-" Scholarly and journalistic activities (e.g., oral history, journalism, biography, literary criticism, legal research, and historical scholarship), including the collection and use of information, which focus directly on the specific individuals about whom the information is collected," are not considered research according to 45 CFR 46.102(I)(1).

Please note that this. Decision only applies to your current application, and any modifications to your protocol must be reported to the Liberty University IRB for verification of continued non-human subjects research status. You may report these changes by completing a modification submission through your Cayuse IRB account.

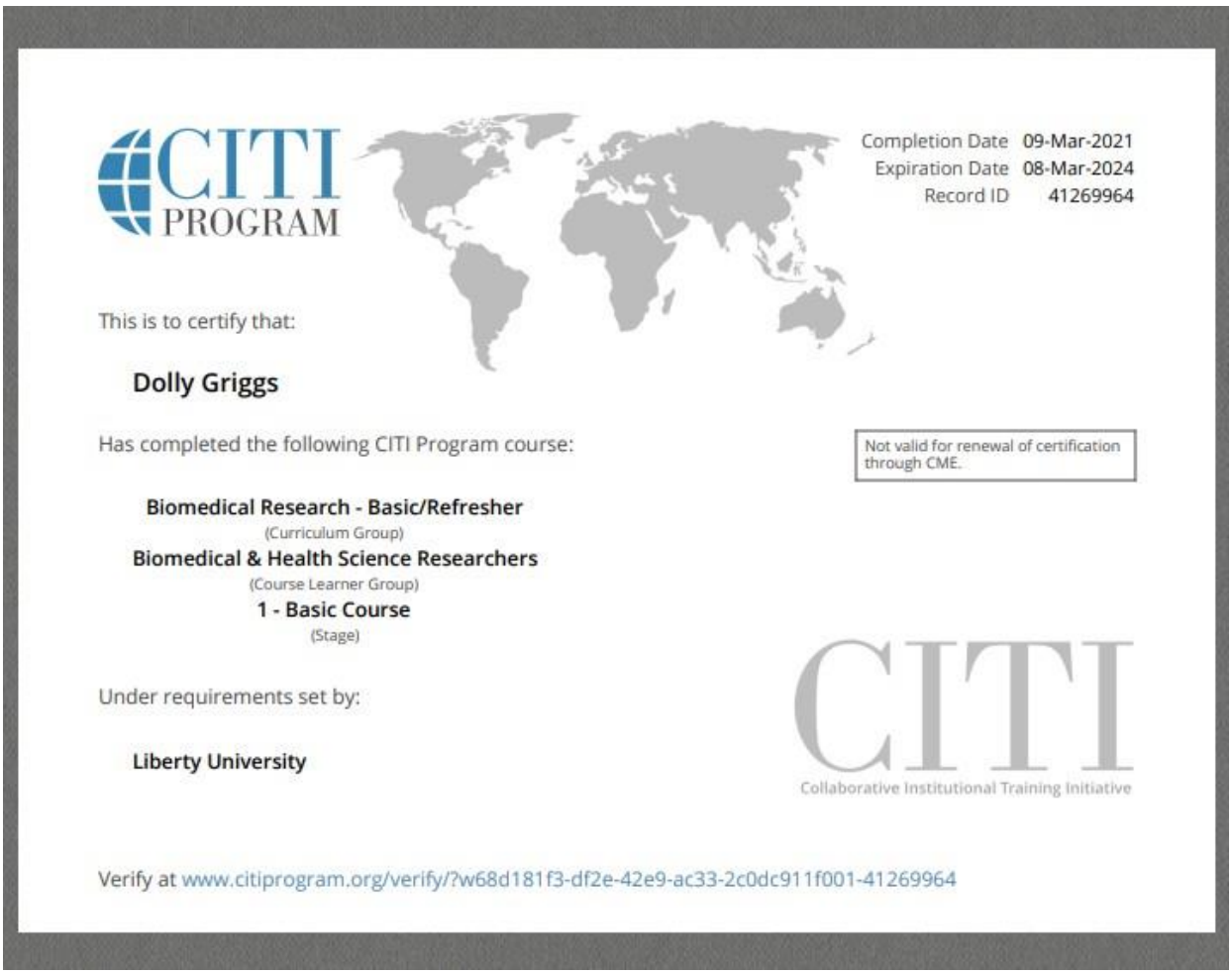
Also, although you are welcome to use our recruitment and consent templates, you are not required to do so. If you choose to use our documents, please replace the word *research* with the word *project* throughout both documents.

If you have any questions about this determination or need assistance in determining whether possible modifications to your protocol would change your application's status, please email us at irb@liberty.edu.

Sincerely,

G. Michele Baker, MA, CIP
Administrative Chair of Institutional Research
Research Ethics Office

Appendix D: CITI Certificate



CITI PROGRAM

Completion Date 09-Mar-2021
Expiration Date 08-Mar-2024
Record ID 41269964

This is to certify that:

Dolly Griggs

Has completed the following CITI Program course:

Not valid for renewal of certification through CME.

Biomedical Research - Basic/Refresher
(Curriculum Group)
Biomedical & Health Science Researchers
(Course Learner Group)
1 - Basic Course
(Stage)

Under requirements set by:

Liberty University

CITI
Collaborative Institutional Training Initiative

Verify at www.citiprogram.org/verify/?w68d181f3-df2e-42e9-ac33-2c0dc911f001-41269964