INTEGRATIVE REVIEW: IMPACTS OF TELEMONITORING ON WEIGHT OBESITY IN AFRICAN AMERICANS

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

Miranda Mbutambe

Liberty University Lynchburg, VA

December, 2022

INTEGRATIVE REVIEW: IMPACTS OF TELEMONITORING ON WEIGHT OBESITY IN AFRICAN AMERICANS

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

Miranda Mbutambe

Liberty University, VA

December, 2022

Scholarly Project Chair Approval:

Dr. Kris Diggins DNP, MBA, CNE, NEA 12/10/2022

Type Chair Legal Name, Credentials Here (Chair must sign and date on the line above).

Date December, 2022

ABSTRACT

Obesity has become a complex public health issue among African Americans over the last few decades, due to the health risks it poses to this population. Obesity exposes African Americans to a variety of chronic diseases, including, but not limited to, diabetes and cardiovascular diseases. Owing to the complexity inherent in obesity, healthcare practitioners have developed various strategies and interventions to manage weight among vulnerable populations. In this regard, telemonitoring, a continuous or non-continuous process that allows medical practitioners to remotely monitor, collect, and interpret data necessary for medical follow-up and, if necessary, make medical decisions regarding the health state of a patient, has emerged as a helpful intervention in weight management. This paper is an integrative review examining the impacts of telemonitoring on weight management in African Americans. The integrative review will review the issues associated with weight management among African American adults and then undertake a literature review examining the prevalence, trends, and patterns of telemonitor weight management African American adults in the current body of literature. Additionally, the review will undertake methodological analysis by examining the literature in the context of the reliability and relevance of the data used in the studies. Overall, the review will conclusively examine the literature results and discuss the result concerning the topic of study.

Keywords Telemonitoring, obesity, chronic diseases, weight management, African American adults.

ACKNOWLEDGMENT

Words cannot express my gratitude to my chair, Dr. Kris Diggins, for her timely and unconditional support, patience, and constructive feedback throughout this journey. There is no way I could have undertaken this massive project without the support of my family, and my incredible husband, Mbutambe Akpang, who endowed me with great support and encouragement. I feel so blessed because he is a great friend and father. My children Grayson, Didi, Mamaja, Sweetney, Etagha, and Mbutambe Jr, whose love and support propel me forward to the finish line. They are the rock upon which I stand. Their support meant everything to me.

To my mother and father, whose dream was for me to have my Doctorate, and empowered me with the basics to propel. To my younger brother Junior Mbua La Mbua, whose support and unconditional love have been a relentless driving force to my success.

I also owe a debt of gratitude to my Mentor Dr. Solomon Agbor who allowed me to learn from the best and for his expertise and assistance throughout my scholarly project.

My job at Cityworld Family Practice gave me the perspective to understand the need for proper weight management among African Americans.

TABLE OF CONENTS

LIST OF TABLES

SECTION ONE: INTRODUCTION

The emergence of internet technology has allowed the development of telemonitoring, whereby practitioners remotely monitor various medical conditions and improve patient care management. The development in telemonitoring has been extended to a variety of medical arenas, including weight management. Notably, in the modern healthcare system, medical practitioners use telemonitor to monitor weight among patients susceptible to chronic diseases associated with being overweight and obese (Wang et al., 2018). Obesity is abnormal body fat accumulation that may impair health (WHO, 2021). The technique has proven effective in weight management among African American adults. Furthermore, the technique has been proven to be efficacious in reducing the development of conditions associated with being overweight and obese. Considering the health adversities related to obesity and overweight among African American adults, it is vital to examine the impacts of telemonitoring on weight management in this population.

DNP Essentials stands as a guide to a DNP's nursing practice. A DNP can become a successful provider by applying organizational, biophysical, psychosocial, and analytical theories (ANA, 2006). DNP uses science-based concepts to improve health care delivery and patient outcomes. DNP essential that will help me with my project to clarify my knowledge of obesity management and the concomitant impact of technology on it. The following DNP essentials are relevant to the feasibility of my scholarly project. Essential 1. Scientific Underpinnings for Practice; understanding nursing theory is vital to advanced nursing practice (Ng, 2017). The DNP program graduates are prepared to integrate organizational, analytical, psychological, and biophysical sciences with nursing (AACN, 2006). To improve patient outcomes, this DNP requirement emphasizes evaluating, improving, and enhancing healthcare delivery. This project aims to improve healthcare outcomes for African-Americans

by assessing the effectiveness of telemonitoring for weight management (Ng, 2017). Essential II. Organizational and Systems Leadership for Quality Improvement; DNP graduates interpret, translate, and disseminate nursing research.

With my scholarly project, DNP essential II will serve as a guide for its dissemination for maximum impact, enabling me to critically interpret and analyze my research articles. This project aimed to analyze and disseminate several studies on telemonitoring for weight management to promote an evidence-based approach to weight management. The findings of this research can help develop clinical practice guidelines for managing obesity. Essential III. Clinical Scholarship and Analytical Methods for Evidence-Based Practice are critical in my project. The clinical scholarship will help me integrate theory into practice. DNP clinicians are trained in systems thinking and organizational leadership to develop novel solutions to complex healthcare issues. This DNP essential underpins the duty of a DNP graduate to guarantee a higher standard of care and patient safety, critically analyze medical research and improve patient care outcomes (AACN, 2006). This project aims to ethically address obesity and overweight among African-Americans while maintaining patient safety through telemonitoring. Doctors of nursing with advanced training in systems leadership can influence healthcare delivery across an organization and work with policymakers to develop new healthcare initiatives (Ng, 2017).

Essential IV. Technology has been at the forefront of healthcare. This project aims to see the guided impact of technology on weight management in African Americans. Information Systems/Technology and Patient Care Technology for the Improvement and Transformation of Health Care. By means of this essential, DNPs are better equipped to support clinical decision-making with information and patient care technologies (AACN, 2006). The Essential VI. Inter-Professional Collaboration for Improving Patient and Population Health Outcomes is vital given that this project improves African Americans'

health by monitoring their weight loss through telemonitoring. DNP graduates who complete this program have the communication and teamwork skills to manage multidisciplinary teams (AACN, 2006). DNP graduates create and implement practice models, care standards, as well as other scholarly initiatives to guide my project. The study's findings also highlight the significance of inter-professional collaboration among healthcare professionals to provide high-quality, safe care for the treatment of weight-related conditions. Essential VII. Clinical Prevention and Population Health for Improving the Nation's Health; DNP practitioners are prepared to analyze and interpret data from occupational, environmental, and biostatistical sources to improve both individual and community health (Ng, 2017). Against this backdrop, the current project investigates the effectiveness and technology used in weight management for African-Americans to address both local and national weight-related health issues. DNPs can more easily link the cultural and psychosocial effects of community health with the assistance of this component (Ng, 2017). Essential VIII Advanced Nursing Practice is vital to my project. The DNP VIII critical uses evidence-based, systems thinking, and clinical judgment to promote positive patient outcomes (AACN, 2006). These essentials will facilitate the dissemination phase, which covers in-depth needs analyses and training to assist patients with difficult transitions (Ng, 2017). This essential cover needs assessments, mentoring, and patient changes. This project critically examines research studies on telemonitoring as a weight management method to raise awareness, increase knowledge, and assist obese and overweight patients in managing their weight more effectively.

BACKGROUND

The coronavirus pandemic has highlighted the health risks associated with obesity. More than 40% of U.S. adults are obese, and a high BMI is a risk factor for covid-19 symptoms (Vaidya & Mirza, 2021). In 2016, more than 650 million adults worldwide were obese, almost tripling since 1975 (Følling et al., 2021). Obesity is caused by genetic,

environmental, epigenetic, behavioral, and socioeconomic causes. Obese people tend to be reluctant to seek health care due to stigma. To overcome this stigma, it is necessary to understand the true causes of obesity, focus on successful treatments, and combat misinformation. The underlying causes of being overweight and obese include not getting enough exercise and eating high-calorie, low-nutrient foods, and beverages. African American women have the highest obesity rates in the United States, with 4 out of every 5 African American women being overweight or obese (*Office of Minority Health* n,d). According to the *Office of Minority Health* n,d, African Americans were 1.3 times more likely to be obese than whites in 2018, with black women being 50% more likely to be obese than their white counterparts. Obese and Overweight people are also more likely to suffer from high blood pressure, high blood fats, diabetes, LDL cholesterol, all heart disease, and stroke risk factors. African Americans are particularly vulnerable to various health disparities that lead to the disproportionate prevalence of chronic diseases (Patel et al., 2019). For instance, due to deep-rooted caste systems perpetuating health inequalities, chronic diseases such as hypertension and cancers disproportionately affect African Americans.

Additionally, the upward mobility of African-Americans exposes them to an unhealthy lifestyle due to career and personal choices they are compelled to make in their new lives (Wang et al., 2018). As a case in point, African-Americans living in the suburbs are obligated to adopt careers and lifestyles that do not support healthy living. Also, African-Americans are susceptible to various chronic diseases (Wang et al., 2018). For example, diabetes is more prevalent among African-Americans than among other ethnicities. Considering the aforementioned factors, examining the impacts of telemonitoring on weight management amongst African Americans is a critical public health topic of study.

PROBLEM STATEMENT

Obesity and overweight have become public health problems in the United States and across the globe in general. According to studies conducted between 2017 and 2020, the U.S. had an obesity prevalence of approximately 41.9% (Michaud et al., 2021). Additionally, the U.S. has witnessed a steady rise in overweight and obesity-related conditions over the last decade, especially among the African Americans. For instance, in 2019, the country incurred an annual medical cost of approximately $173 billion in 2019 due to weight-related conditions (Patel et al., 2019). The situation is highly worrying for African Americans since the population is vulnerable to weight-related diseases in addition to having the highest age-adjusted prevalence of obesity (49.9%) and inadequate healthcare resources.

PURPOSE OF THE PROJECT

This project aimed to use existing literature to review the impact of telemonitoring on weight management in African Americans. Generally, the review seeks to examine the current literature to develop an in-depth understanding of telemonitoring in weight management. Notably, the evaluation's purpose was to use the existing body of literature to elaborate on the impacts of telemonitoring on weight management among African Americans. Telemonitoring is considered satisfactory, easy to use, and helpful for weight loss by patients (Dounavi & Tsoumani, 2019). The weight loss potential of telemonitoring lies in its ability to increase treatment adherence through self-monitoring. High levels of telemonitoring engagement result in satisfactory treatment adherence, weight loss, and weight maintenance**.**

Studies suggest that routine weight management is directly linked to significant improvement in health outcomes, particularly among overweight and obese patients (Dounavi & Tsoumani, 2019; Patel et al., 2019). Thus, medical practitioners advise their patients to enroll in weight management programs. However, most patients lack access to weight

management programs. Research indicates that practitioners and patients ought to create weight management programs tailored to meet the needs and requirements of patients across all communities to overcome the challenges associated with inadequate access to weight management programs. Research also indicates that remote monitoring of weight and online-based information sharing are critical tools in weight management. Hence, this study examines the efficacy of implementing telemonitoring strategies in weight management among African Americans. Research regarding the use of telemonitoring techniques in weight management was available when formulating and designing the study as the Covid-pandemic has expanded the use of telehealth in healthcare services.

CLINICAL QUESTION

Does the use of Telemonitoring have an impact on weight management in African-Americans?

INCLUSION AND EXCLUSION CRITERIA

Cognizant of the research question, problem statement, and project purpose, the inclusion criteria are publications written over the last ten years that address weight management through telemonitoring strategies. The selected articles were written in English. They managed at least one of the measurable outcomes of this study. Moreover, the included articles addressed the telemonitor's efficiency, reliability of telehealth devices, or accuracy of the device and research. Furthermore, the included articles were full texts and peer-reviewed. Excluded articles address weight management using alternative strategies or in-person management. Finally, excluded articles use other languages or were published earlier than 2017. (See Table 1)

SECTION TWO: LITERATURE REVIEW

SEARCH STRATEGY

Since this study is an integrative review, online databases, and search engines such as PubMed, CINHAL, ProQuest, EBSCOhost MEDLINE with Full Text, and Google Scholar were used to identify the primary sources articles. Notably, the keywords highlighted used were “obesity,” telemonitoring," and "African Americans," in conjunction with Boolean operators to search relevant articles and reports.

SEARCH CRITERIA

Considering the inclusion and exclusion criteria, this study used a systematic literature search using databases such as PubMed, CINHAL, ProQuest, EBSCOhost MEDLINE with Full Text, and Google Scholar. For the search, the inclusion criteria were articles addressing weight management using telemonitoring among African Americans, mainly focusing on the efficacy, reliance, and accuracy of telemonitoring devices. Thus, the initial search through the databases aimed at gathering a broad spectrum of information regarding weight management in the U.S. using telemonitoring strategies. This search returned 1086 publications. However, the publications were too extensive to address the clinical question of the study. Thus, the search was further limited to criteria that best suited the clinical question, problem statement, measurable outcomes, and purpose of this project.

A follow-up search through the databases was conducted with less generalized inclusion criteria. The search aimed to obtain articles that provided helpful information regarding the investigation topic. Thereafter, the search applied Boolean terms to formulate search terms and keywords. The probe entered (*Telemonitoring AND Weight management OR African American Weight management Telemonitoring OR Weight Management AND Telehealth Efficiency OR Reliance OR Accuracy*) and produced 506 articles. The search was limited to peer-reviewed articles published in English no earlier than 2017 and contained full

text. Following the examination, 47 articles satisfied the inclusion criteria; however, only fifteen were deemed sufficient to address the investigation topic. Most results were excluded due to inadequate data and irrelevant findings. The 15 articles selected for the investigation provided adequate information and data to provide insight concerning telemonitoring's efficiency, reliability of telehealth devices, or accuracy of the device and research.

CRITICAL APPRAISAL

After gathering the evidence required for the study, PRISMA was used to showcase preliminary literature searches and analyses. A matrix table was used to illustrate the reliability and relevance of the evidence gathered from the articles. (See Table 2)

SECTION THREE: METHODOLOGY

DESIGN

This project used qualitative and quantitative approaches to review and summarize past and theoretical literature to provide a comprehensive understanding of the use of telemonitoring in weight management among African Americans. To fully comprehend the subject of study, the approach included both experimental as well as non-experimental research.

MEASURABLE OUTCOMES

The study aimed to provide an in-depth understanding of the impact of telemonitoring on weight management among African Americans by analyzing the current body of literature. Accordingly, the measurable outcomes included the telemonitor's efficiency, reliability of telehealth devices, and accuracy of the device and research.

SETTING

This study investigated the impacts of telemonitoring on weight management among African Americans through an analysis of current literature. Hence, the project did not have a physical, social, or experimental context.

POPULATION

The research question targets African Americans. Despite the limited availability of current literature regarding the population group, African Americans remain the target population of this study.

ETHICAL CONSIDERATION

Explicit ethical considerations do not bind integrative reviews since they do not collect sensitive information from people from real life. Instead, the integrative review analyzed information presented by previous studies. Even though this study is not bound by

explicit ethical considerations, proper citation and referencing are required to avoid violating plagiarism and copyright regulations.

DATA COLLECTION

Considering this study is an integrative review, data were collected from previous studies using the Systematic Review Data Repository to summarize information from articles, reports, and websites used for this study. In addition, PRISMA guidelines were used to extract data from previously assessed research publications.

TOOLS

This study used critical appraisal to evaluate the impacts of telemonitors on weight management, whereby studies were carefully examined to establish their trustworthiness, relevance, and value relates to the topic of study.

INTERVENTION

According to the literature, African Americans should integrate telemonitoring into weight management programs. Telemonitoring helped improve the participants' body mass index, body fat rate, waist measurement, and diet habits (Wang et al., 2018). Telemonitoring encompasses features such as automatic mobile transmission and real-time feedback that foster effectiveness in weight management (Wang et al., 2018). The features engrossed in telemonitoring allow medical practitioners to employ technology in remote patient monitoring for weight loss management by allowing real-time collection, storage, and analysis of patient information.

DATA ANALYSIS

Patients using telemonitoring recorded improved weight management outcomes than individuals using traditional approaches. The efficiency of the devices is seen through positive results, whereby patients placed under remote monitoring lose about 3 to 4 pounds per month. Although telemonitoring can be cost and time-intensive, it fosters lifestyle

changes that result in clinically significant weight management improvement among all patients since it improves about 60% of them. Unarguably, a 3 to 4 pounds weight loss per month is measurable and substantial to support the clinical question of this study.

QUALITY APPRAISAL

The clinical question of this study aimed to examine the current body of literature to evaluate the efficacy of telemedicine in weight management among African-Americans. As such, the scope of the articles required for analysis was predefined by the problem statement along with the study's target population. However, most publications tend to examine the efficacy of medical intervention using fragmented target populations using criteria such as age, geographical location, or gender. Thus, this study cut across numerous publications assessing relevant and credible information to provide insight regarding using telemonitoring strategies in weight management among African-Americans to address the clinical question. Given the specification of the clinical question, articles selected for the integrative review were assessed using two perspectives. Notably, the publications had to satisfy the inclusion criteria or reinforce the research by providing context to the study or supplementing and broadening the research.

Sources of Bias

Integrative review relies on secondary data; thus, when using this research design, it is essential to understand when and where potential bias may arise. At the same time, it is necessary to account for any factor that may create bias in the integrative review by assessing for inherent bias in the publications and mitigating bias in the article selection processes. Moreover, when undertaking an integrative review, it is crucial to account for internal and external bias by assessing the transferability, credibility, reliability, and relevance of data provided by the publications. Essentially, the nature of integrative review renders it

vulnerable to bias; hence, it is crucial to account for all potential sources of bias before commencing the study.

Cognizant of the effect of bias on research, studies tend to use appraisal tools to assess bias, strengths, and possible limitations of data sources. This study used the Melynk Levels of Evidence to appraise articles for bias, strengths, and limitations. Notably, most articles utilized in this review exhibited similar bias, strengths, and limitations due to the limited number of publications addressing every aspect of the clinical question. Most articles reinforce evidence supporting the clinical question. For instance, Latner and Ciao (2014) conducted a study with 128 participants to examine weight-loss history as a predictor of obesity treatment outcome. The researchers provide information regarding weight management that is critical to this study but does not meet all the specifications of the clinical question and measurable outcomes. Therefore, this study critiqued several aspects of the articles to evaluate the relevance, transferability, credibility, and bias of the data, allowing potential bias to masquerade as possible supplementary information.

Since publications that were eventually included in the study accounted for a handful of theories highlighted in the problem statement and addressed a bare minimum of measurable outcomes of the study, the Melynk Level of Evidence appraisal tool was essential for this study. The appraisal tool aided literary critique by allowing this study to account for bias in the final analysis and limitations of the publications. Notably, the appraisal tool helped this study put forth factors that allowed articles addressing supplementary questions to be included in the study. For example, despite having an 84% completion rate, a study by Patel et al. (2020) was included in the review because the final analysis accounted for its limitation. Thus, the appraisal tool helped determine how articles that did not measure up the set of variables introduced by the clinical question could help support supplementary issues raised

in the measurable outcomes section, creating bias arising from the step-by-step analysis of ancillary information.

As established in the previous section, most articles exhibited similar biases due to varying amounts of relevance to the clinical question. To illustrate, Michaud et al. (2021) conducted a systematic review of seventeen articles to investigate the impact of telemonitoring-facilitated lifestyle modifications on diabetes outcomes. Considering that articles pursuing a similar line of inquiry are likely to exhibit similar bias, Michaud et al. (2021) did not account for the diversity in participants and data collection methodology. Although the publications used for the integrative analysis account for bias, the segmentation brought around by various approaches limited the applicability of appraisal tools in bias elimination to this study.

Internal Validity

Integrative reviews are sensitive issues arising from innumerable factors. This study used an evidence table to gather and store research articles. Notably, the table was fragmented into columns, each addressing an issue related to the articles' internal validity. As a case in point, the evidence table discussed the purpose of the study, sample size, limitations, relevance to the clinical question, and measurable outcomes. Moreover, the evidence table addressed the level of evidence, limiting potential internal bias and restricting the alternative interpretation of data. Although further research was undertaken to examine the applicability of data and results, the evidence table addressed internal validity to a substantial level.

Appraisal Tools

The clinical question and measurable outcomes called for an extensive critique of publications selected for the integrative review. Therefore, literature appraisal was undertaken using guidelines and checklists as stipulated by Melnyk's Level of Evidence. Notably, each publication that met the inclusion and exclusion criteria was evaluated to

ensure its relevance to the clinical question or measurable outcomes as dictated by Melynk and Fineout-Overholt (2019). Melnyk's Level of Evidence evaluated the significance of the articles to the problem statement and clinical question. The appraisal tool essentially allowed this study to determine the relevance and information value of articles selected for the review.

Besides, this study used an abstracted literature matrix to synthesize and organize critical findings. The abstracted literature matrix was used to discern the quality and eligibility of data, which allowed this study to deduce results using a descriptive summary. The appraisal tool reviewed the quality and eligibility of the data by examining the research design and methodology. Moreover, the appraisal tool evaluated the relevancy of the data by examining how it addresses the clinical question and supplemental questions highlighted in the measurable outcomes. For this reason, the abstracted literature matrix provided a tool for exploring the selected articles' information value while examining the data's relevancy to the clinical question and measurable outcomes.

The appraisal tools aim to identify potential threats to the validity of the research findings from the literature and provide the study with the evidence necessary to address the clinical question and measurable outcomes. For example, when appraising Jiwani et al. (2022), appraisal tools were used to examine whether the study findings answered the clinical question or supplemental questions. Importantly, the appraisal tool explores whether the data and conclusions of the article resonate with the clinical question. Jiwani et al. (2022) satisfied the inclusion and exclusion criteria since the researchers conducted a single-arm experiment using 20 randomly selected participants. Notably, the article was founded to be relevant to this study, although it focused on discerning whether mobile health technology for self-monitoring is effective in weight management programs. Thus, the appraisal tools allowed the synthesis of information from selected articles.

Moreover, the appraisal tools were used to determine the relevance of data concerning the clinical question and measurable outcomes. For instance, when evaluating Davis et al. (2015), the appraisal tools were used to determine whether the article was sufficient to provide background information regarding the investigation topic. Even though the relevance of the data was found to be low concerning the clinical question, the article did help provide theoretical information regarding weight management among African American. Davis et al. (2015) used 82 theories and nine criteria for evaluating the quality of a theory, providing insight into weight management, which was an essential aspect of this study. Fundamentally, the appraisal process allowed the inclusion of articles that provided an insightful perspective regarding the investigation topic.

The appraisal tools helped determine articles that provide insight into the clinical question. To illustrate, although the data's relevancy was remarkably low, tools allowed the inclusion of Sallis et al. (2015). The focus of this study conducted by Sallis et al. (2015) was on analyzing strategies for promoting physical activity in clinical practice. Thus, the focus of the research does not address the clinical question or measurable outcomes; however, the articles helped provide insight concerning the use of evidence-based practices in the delivery of care. For this reason, the appraisal tools allowed this study to define additional parameters of the investigation topic by allowing the inclusion of articles that denote crucial insight regarding clinical practices.

Melnyk's Level of Evidence provided insight concerning the transferability of evidence gathered from literature using ranks. Using the approach, a study by Patel (2019) examining a novel behavioral weight loss intervention seeking to attenuate the decline in dietary self-monitoring engagement was appraised, and its evidence was placed at level two. The article was placed at evidence level two since the researchers used a convenience sample of 105 participants with overweight or obese to compare self-monitoring strategies for weight

loss in a smartphone app. Although the sample was limited and the completion rate was 84%, the appraisal tool was categorized as sufficiently rigorous. Indubitably, this appraisal tool was used to discern the relevance of article results to the clinical question despite a low level of authenticity.

Wang et al. (2018) sought to examine behavioral lifestyle intervention enhanced with multiple-behavior self-monitoring using mobile and connected tools for underserved individuals with type 2 diabetes and comorbid overweight or obesity. Although the study only reinforced contentions previously raised in another article, which was essential for developing this integrative review, the authenticity of the evidence made the article highly relevant. Notably, Wang et al. (2018) conducted a randomized a trial using a convenience sample of 26 patients to examine behavioral lifestyle intervention concerning weight management. In the randomized trial, the mean age of the participant was 46.72 years, with 56% white participants, 34% black participants, and 10% other participants, and had a 0.67 p-value ($P<0.001$), demonstrating that in practice, there is sufficient data to support the contention that telehealth has positive implications on weight management (Wang et al., 2018). Thus, the appraisal tools allowed the development of a significant distinction between various measurable outcomes of this study.

Since the primary aim of the study was to determine the telemonitor's efficiency, reliability of telehealth devices, and accuracy of the device and research weight management among African Americans, it was essential for data to be delivered meticulously and be statistically significant for this study. Thus, the appraisal tools were used to explore the relevance of evidence synthesized from the abstracted matrix. For example, when appraising a study by Franz et al. (2015) to examine lifestyle weight-loss intervention outcomes in overweight and obese adults with type 2 diabetes, Melnyk's Level of Evidence examined its relevance in providing background information regarding weight management. Conclusively,

the appraisal tools were used to determine whether the selected articles were sufficiently authentic, relevant, and credible to address the clinical question and measurable outcomes and provide background information about the investigation topic.

Applicability of Results

Studies suggest that the efficiency of telehealth is gradually improving as more innovations and discoveries are made in the medical sphere (Latner & Ciao, 2014; Michaud et al., 2021). In wake of this fact, technologies such as video conferencing and web-based online sharing platforms have been integrated into numerous fields over the past two decades; incorporating these technologies in medicine has the potential to improve healthcare. Therefore, the results derived from this study lay a foundation for the expansion of telemedicine since the findings supported the adoption of telemonitoring in weight management. Given that the findings of this study span beyond clinical questions, the results are critical for nursing practices since they sum up strategies for introducing telemedicine in all clinical settings. The results provide guidelines for incorporating technology to expand care delivery and future studies.

SECTION FOUR: DATA ANALYSIS AND SYNTHESIS

Integrative reviews use data from incumbent literature to address the problem statement of a study. Therefore, this study analyzed incumbent literature about the application of telehealth in weight management to establish the efficiency of telemonitoring strategies and address the clinical question. Accordingly, this study adopted a synthesis approach, whereby thematic elements were synthesized from the chosen articles. The synthesis used a literature matrix to report data and descriptive summaries from selected articles and accumulated research. Additionally, this study synthesized literature by analyzing findings and results of selected articles to address supplement questions raised in the measurable outcomes and problem statement.

DATA ANALYSIS

Data analysis is critical for every study since it allows researchers to infer meaning from the results and findings of the selected data. This study used an abstracted literature review matrix to group the articles based on their results and findings. However, the focus of this study is to examine the impacts of telemonitoring on weight management among African-Americans, which is why the literature matrix span beyond the focus of the study by incorporating supplemental information relevant to the measurable outcomes, aims, and problem statement of the study. For example, in the literature matrix, findings relevant to measurable outcomes were reported separately from the information relevant to the clinical question. Moreover, the literature matrix also included a column to indicate Melnyk's Level of Evidence to address the credibility of the information. Thus, the data derived from the literature were analyzed, sorted, and grouped due to their relevance and credibility to the clinical question, measurable outcomes, and problem statement of this study.

DESCRIPTIVE RESULTS

Research indicates no predefined stipulations for reporting descriptive results of an integrative review (Moran et al., 2020; Whittemore & Knafl, 2005). In addition, the articles used for this integrative review used a variety of research designs and methodologies. As such, the findings and results used diverse formats to report the impacts of telehealth. Thus, this study undertook a comprehensive and descriptive analysis based on the discussion section of each article. Due to the diversity of articles, the descriptive analysis section borrowed information from the abstracted literature matrix. The abstracted matrix allowed this study to review the articles concurrently vis-à-vis the measurable outcomes and clinical questions. Fundamentally, a thematic analysis of the selected articles was undertaken to get the descriptive results using the clinical question and measurable outcomes as the guidelines.

ADHERENCE

The literature matrix identified 8 of the 15 articles to be directly related to the PICOT question, while the rest addressed supplemental questions (See Table 2: Article critique and leveling matrix). Thus, the integrative review sufficiently addressed the investigation topic of the study. Notably, by examining 17 studies published between January 2000 and October 2018, Michaud et al. (2021) assessed the impact of telemonitoring facilitated lifestyle modifications on diabetes outcomes. The study found that telemonitoring has significant but modest implications on lifestyle, leading to lifestyle changes among some patients. Therefore, overall telemonitoring can positively impact weight management among African Americans. Moreover, Patel et al. (2019) conducted a randomized controlled trial using 105 participants to examine the efficacy of behavioral weight-loss intervention through self-monitoring strategies that use smartphone apps and found that behavioral weight-loss management can produce clinically significant outcomes. The findings resonate with the preceding study although the randomized controlled trial had an 84% completion rate.

Besides, Wang et al. (2018) conducted a randomized controlled trial with 26 participants to examine the feasibility of and compare the efficacy of behavioral lifestyle intervention through mobile and connected tools for underserved individuals with type-2 diabetes and comorbid overweight or overweight or obesity. The study found that mobile and connected tools are effective in weight management compared to other alternatives since they promote behavioral lifestyle intervention (Wang et al., 2018). Despite limitations regarding participants and duration, the study provided insight into the implications of telehealth on weight management. Patnode et al. (2017) conducted a study whose findings reverberate with the contention of Wang et al. (2018) and concluded that behavioral lifestyle intervention has positive health implications for individuals with overweight and obese. Since telemonitoring seeks to change behavioral lifestyle, the study is relevant to the clinical question since it provides insight into weight management through behavioral lifestyle changes.

Bonn et al. (2022) conducted a randomized controlled trial with 396 participants to evaluate the effectiveness of using health integrator smartphone applications in a clinical setting by examining the clinical outcomes among working adults. The study found observable health outcomes improvements among participants using health integrator smartphone applications (Bonn et al., 2022). Although Bonn et al. (2022) used self-reporting to collect the data from the participants, the study is essential since it provided insight into the implications of telemonitoring in a clinical setting. In addition, Jiwani et al. (2022) conducted a single-arm experiment with 20 participants to determine the feasibility of a behavioral lifestyle change intervention enhanced using health technology for self-monitoring in weight management. Jiwani et al. (2022) postulate that Mobile health technology for self-monitoring is effective in weight management programs since they support lifestyle and behavioral changes. Thus, the article adheres to the PICOT question by providing information regarding the use of health technology for self-monitoring in weight management.

Furthermore, by undertaking a randomized controlled trial to evaluate the feasibility of mobile health applications in managing chronic conditions, Cuccinello et al. (2021) reinforced the contention raised by Jiwani et al. (2022). Cuccinello et al. (2021) concluded that mobile health apps facilitate the management of chronic conditions and promote positive health outcomes. Although the study is not specific to weight management, it is relevant to the clinical questions since it provides evidence of the feasibility of mobile health apps in managing chronic conditions like obesity. Scott et al. (2020) further addressed the issue of mobile applications in managing chronic diseases by conducting a systematic review involving 19 studies. According to the findings of this study, there is consistent evidence to support the use of mobile apps in managing chronic conditions. Fundamentally, the eight studies provide substantial evidence regarding the clinical question by delving into various telemonitoring and weight management aspects.

SUPPLEMENTARY INDICATORS

While undertaking this research, some themes emerged that were not highlighted in the clinical question but were relevant to the topic under investigation. This section will address these themes by examining and extrapolating indicators from the clinical and supplemental questions. Notably, this section will discuss materials that supplement the clinical question, thus, acting as indicators of adherence.

Durability

Lean et al. (2019) assess the durability of primary care-led weight management intervention by undertaking an open-label, cluster randomized control trial with 149 participants. The study found that direct care-led weight management intervention has significant implications for health outcomes. While it is onerous to directly establish the durability of telemonitoring, considering that the strategy is care-led, the study provides insight into weight management. Moreover, the participants were selected using a random

cluster technique allowing the study to address significant long-term implications of weight management. Huang et al. (2022) undertook a systematic review to analyze the magnitude of weight loss and weight variability association with mortality and cardiovascular. Cognizant of the fact that ineffective weight management is associated with a high mortality rate and cardiovascular events, the study provided insight into the durability of weight management strategies. While only 30 studies were included in the systematic review, it provided crucial details regarding weight management and consequentially chronic diseases, insight into the durability of weight management strategies, and adherence to the clinical questions.

Lifestyle Weight Management

Franz et al. (2015) undertook a randomized clinical trial to determine the impacts of lifestyle weight-loss intervention on health outcomes and quality of life. The study concludes that lifestyle changes for individuals with obesity lead to positive health outcomes and improved quality of life (Franz et al., 2015). Although the study does not directly address the clinical question, it determines the impacts of lifestyle changes on the quality of life and health outcomes. Notably, the study undertook 11 trials with 6,754 randomly selected participants comparing multiple factors associated with weight management (Franz et al., 2015). The study found a significant difference between the experimental and control groups in the elements the researchers examined (Franz et al., 2015). However, the study does not provide insight into the strategies adopted by the participants to enhance lifestyle changes. However, it illustrates how lifestyle changes positively influence the health outcomes of individuals with obesity. Therefore, the study supplements the information provided by studies seeking to investigate the efficacy of telemonitoring in weight management among African Americans.

By undertaking a meta-analysis of 30 studies, Thomsen et al. (2022) examined long-term outcomes of dietary carbohydrate restrictions for HbA1c reduction in type 2 diabetes

mellitus. The study found that dietary restriction can reduce the risk of chronic diseases (Thomsen et al., 2022). Dietary restriction is a lifestyle change because it entails adopting new nutritional guidelines. Although the study does not address the impacts of telemonitoring on weight management, it delves into the implications of adopting new strategies in weight management, which is essential for the study since it provides supplemental information on the clinical question (Thomsen et al., 2022). Thus, the study lays a platform for determining whether telehealth implementation is an effective strategy for maximizing lifestyle changes in weight management (Thomsen et al., 2022). Fundamentally, the study provided critical information about dietary carbohydrate restriction as a lifestyle change strategy.

Behavioral Change

A significant percentage of the articles reviewed in this integrative review suggest that behavioral change plays an instrumental role in weight management. Notably, telehealth is likely more effective in weight management among African Americans. Behavioral change is instrumental for the study, considering that overall telemonitoring is mainly used to maintain care with existing providers. Sallis et al. (2015) conducted a meta-analysis to analyze strategies for promoting physical activity in clinical practice. According to the findings of this study, various techniques can be used to promote physical activity in clinical practice. Although the meta-analysis consisted of 19 studies, it provides a baseline for comparing telehealth and other strategies (Sallis et al., 2015). Therefore, the study provided insight into reinforcing telemonitoring in weight management among African Americans.

Davis et al. (2015) conducted a non-experimental qualitative analysis to identify theories of behavior change that are potentially relevant to interventions in psychology, sociology, anthropology, and economic aspects of public health. The researchers used a sample of 82 theories, and nine criteria for evaluating the theory quality were identified for the study. The study found that a wide range of public health interventions can be used in

public health. Telemonitoring seeks to intervene in weight management through behavioral change. In their study Davis et al. (2015) discussed crucial theories that foster behavioral change, providing supplemental information for self-help intervention in weight management. Therefore, the article is supplementary to the study since it provides a detailed framework for integrating self-help theories in telehealth.

Latner and Ciao (2014) conducted an experimental, descriptive survey to examine weight-loss history as a predictor of obesity treatment outcome with a convenience sample of 128 participants in a self-help group. Despite having a limited sample size and using a convenience sample, the study examined the weight-loss history, which is essential for weight management (Latner & Ciao, 2014). Although the study did not address telehealth, it covered crucial weight management aspects. For example, the study concludes that despite losses, patients might benefit from repeated weight-loss efforts (Latner & Ciao, 2014). The study did not draw a credible conclusion regarding weight management, but it is essential to analyze telemonitoring in weight management.

SYNTHESIS

Conferring to Michaud et al. (2021), telemonitoring has excellent potential to enhance weight management further since it includes a systematic approach that supports patients' lifestyle changes. Telemonitoring encompasses features such as automatic mobile transmission and real-time feedback that foster effectiveness in weight management (Wang et al., 2018). The features engrossed in telemonitoring allowed medical practitioners to employ technology in remote patient monitoring for weight loss management by allowing real-time collection, storage, and analysis of patient information. Studies illustrate that a group of patients placed under remote monitoring are likely to lose about 3 to 4 pounds per month compared to individuals who were not under any intervention. Additionally, the study’s findings indicated an overall improvement in patients' lifestyles, whereby the patients made

healthier choices (Michaud et al., 2021). Although the subjects of the studies discussed in most publications are not raced or ethnic-specific, it was apparent that telemonitoring and other telehealth solutions do have the potential to influence weight management among African Americans positively.

A comparative study focusing on telemonitoring and traditional approaches to the effect on weight management concluded that telemonitoring has more significant impacts (Sallis et al., 2015). Importantly, telemonitoring patients recorded improved weight management outcomes than individuals using traditional approaches (Latner & Ciao, 2014). Moreover, it was observed that patients categorized as obese documented improved health outcomes after using telemonitoring. Patel et al. (2019), it is important to note that although telemonitoring can be cost and time-intensive, it fosters lifestyle changes that result in clinically significant weight management improvement among all patients. Thus, it was evident that telemonitoring is an appropriate tool for weight management among African Americans.

ETHICAL CONSIDERATION

Explicit ethical considerations do not bind integrative reviews because they do not involve the collection of sensitive information from people from real life. Instead, the integrative review analyzed information presented by previous studies. Although was study is not bound by explicit ethical consideration, proper citation and referencing are requisite to avoid violating plagiarism and copyright regulations.

SECTION FIVE: DISCUSSION

This study has reviewed up-to-date literature, critiquing and synthesizing information from various studies to examine the impacts of telemonitoring on weight management and assess the efficacy of telemonitoring strategies. The existing body of literature suggests that telemonitoring does indeed have the potential to improve health outcomes for African Americans by reducing their risk factors of contracting chronic diseases (Latner & Ciao, 2014; Michaud et al., 2021). Studies also indicate that telehealth has become increasingly popular in many clinical settings over the last two years (Michaud et al., 2021). The restrictions induced by the Covid-19 pandemic have resulted in the fast-paced expansion of telehealth. Fundamentally, telehealth is likely to improve weight management among African Americans.

Numerous studies assessed durability, lifestyle, and behavioral changes and found them crucial in weight management. In addition, the integrative review examined material pertinent to the clinical question and the measurable outcomes, allowing an in-depth exploration of factors related to weight management. In the study conducted by Michaud et al. (2021), telehealth was analyzed in detail, covering smartphone applications' use to implement telemonitoring weight management strategies. Additionally, the review examined aspects such as the efficacy of telehealth and its impacts on health outcomes by examining issues such as the use of telemonitoring to manage chronic diseases. The evidence suggests enough clinical and empirical data to support the implementation of telemonitoring weight management strategies among African-Americans.

IMPLICATIONS FOR FUTURE PRACTICE

Notably, African Americans experience health inequities due to the accessibility and affordability of healthcare. Considering that telehealth modalities are convenient and accessible, this study lays a foundation for future studies seeking to improve the health

outcomes of African Americans. According to the research examined in this study, telehealth-based weight management can increase adherence to weight management guidelines among African Americans. The finding is critical since the population mentioned above is susceptible to various health disparities. Moreover, the study will serve as the foundation for future evidence-based studies seeking to examine the efficacy and impacts of telemonitoring on weight management. The study will provide telehealth and weight management information for clinical practitioners and nursing students.

DISSEMINATION

This topic of investigation will be presented as partial fulfillment of the requirements for the Doctor of Nursing Practice degree. The review will be published as a foundation for future studies examining the feasibility of telemonitoring in weight management. Considering that the upward mobility of African-Americans exposes them to an unhealthy lifestyle due to career and personal choices they are compelled to make in their new lives, the study will provide a foundation for implementing telehealth in clinical setting

APPENDICES

Table 1: Inclusion and Exclusion Criteria

Inclusion Criteria	Exclusion Criteria
Published last five years	Published earlier than 2017
Include telehealth, remote patient monitoring, or telemonitoring	It does not include telehealth, remote patient monitoring, or telemonitoring
Addresses at least one of the measurable outcomes of this study	It does not address at least one of the measurable outcomes of this study
Published in English	Published in other languages
Peer-reviewed	Non-peer-reviewed
Addresses weight management in America or among African Americans	It does not address weight management in America
Full Texts	Abstract only

Table 2: Article Critique and Leveling Matrix Template

Article Title, Author, etc. (Current APA Format)	Study Purpose	Sample (Characteristics of the Sample: Demographics, etc.)	Methods	Study Results	Level of Evidence (Use Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change? (Yes or No) Provide Rationale.
Davis R, Campbell R, Hildona Z, Hobbs L, & Michie S. (2015). Behavior and behavior change theories across the social and behavioral sciences: a scoping review. *Health Psychol Rev. 9(3):323-344*. 10.1080/17437199.2014.941722	To identify theories of behavior, change that are potentially relevant to interventions in psychology, sociology, anthropology, and economic aspects of	A sample of 82 theories and nine criteria for evaluating the quality of theory were identified for this study.	A non-experimental qualitative analysis.	A wide range of public health interventions can be used in public health.	Level 6: descriptive design	Limited sample size.	Yes, it provides some helpful information regarding interventions for public health.

Article Title, Author, etc. (Current APA Format)	Study Purpose	Sample (Characteristics of the Sample: Demographics, etc.)	Methods	Study Results	Level of Evidence (Use Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change? (Yes or No) Provide Rationale.
	public health.						
Latner J, & Ciao A.C. (2014). Weight-loss history as a predictor of obesity treatment outcome: prospective, long-term results from behavioral, group self-help treatment. *J Health Psychol. 19(2):253-26*1. 10.1177/1359105312468191 [PubMed]	To examine weight-loss history as a predictor of obesity treatment outcome	A convenience sample of 128 participants in a self-help group	An Experimental, descriptive survey	Participants might benefit from repeated weight-loss efforts despite previous losses.	Level 2: Experimental Design	Limited sample size and conducted using a convenience sample	Yes, it Provides helpful information for self-help group intervention in weight management
Michaud, T. L., Ern, J., Scoggins, D., & Su, D. (2021). Assessing the impact of telemonitoring-facilitated	To assess the impact of telemonitoring-	Seventeen studies published between	Systematic review	Telemonitoring has a significant but modest impact	Level 1: a systematic review	Uses a limited number of studies -17.	Yes, it provides crucial information

Article Title, Author, etc. (Current APA Format)	Study Purpose	Sample (Characteristics of the Sample: Demographics, etc.)	Methods	Study Results	Level of Evidence (Use Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change? (Yes or No) Provide Rationale.
lifestyle modifications on diabetes outcomes: a systematic review and meta-analysis. Telemedicine and e-Health, 27(2), 124-136	facilitated lifestyle modifications on diabetes outcomes	January 2000 to October 2018 were included in the study		on lifestyle, leading to lifestyle changes.			regarding the impacts of telemonitoring on lifestyle.
Patel, M. L., Hopkins, C. M., Brooks, T. L., & Bennett, G. G. (2019). Comparing self-monitoring strategies for weight loss in a smartphone app: a randomized controlled trial. JMIR mHealth and uHealth, 7(2), e12209.	Examine a novel behavioral weight loss intervention seeking to attenuate the decline in dietary self-monitoring engagement	The study uses a convenience sample of 105 participants with overweight or obese.	Automated Randomized control trial	Behavioral weight-loss intervention can produce clinically significant outcomes.	Level 2: a randomized trial	Only 84% of the participants completed the trial	Yes, it provides insight into weight management interventions focusing on dietary self-monitoring.

Article Title, Author, etc. (Current APA Format)	Study Purpose	Sample (Characteristics of the Sample: Demographics, etc.)	Methods	Study Results	Level of Evidence (Use Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change? (Yes or No) Provide Rationale.
Sallis R, Franklin B, Joy L, Ross R, Sabgir D, & Stone J. (2015). Strategies for promoting physical activity in clinical practice. *Prog Cardiovasc Dis.57:375-386*. 10.1016/j.pcad.2014.10.003 [PubMed]	Analyze strategies for promoting physical activity in clinical practice	19 studies were used for the study	Meta-analysis	There are a variety of strategies that can be used to promote physical activity in clinical practice.	Level 1: a meta-analysis	In limited studies, only 19 were used for the meta-analysis	Yes, it provides strategies for promoting physical activity in clinical practice
Wang, J., Cai, C., Padhye, N., Orlander, P., & Zare, M. (2018). A behavioral lifestyle intervention enhanced with multiple-behavior self-monitoring using mobile and connected tools for underserved individuals with type 2 diabetes and comorbid	Examine the feasibility of and compare the preliminary efficacy of a behavioral lifestyle	The study uses a convenience sample of 26 patients	Randomized controlled trial	Mobility monitoring is more efficient in weight management as compared to other tools.	Level 2: a randomized trial	Limited sample and study duration	Yes, it offers an insight into behavioral lifestyle intervention enhanced with multiple

Article Title, Author, etc. (Current APA Format)	Study Purpose	Sample (Characteristics of the Sample: Demographics, etc.)	Methods	Study Results	Level of Evidence (Use Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change? (Yes or No) Provide Rationale.
overweight or obesity: a pilot comparative effectiveness trial. JMIR mHealth and uHealth, 6(4), e4478.	intervention using a smartphone or paper-based self-monitoring of various behaviors on weight-loss						behaviors of self-monitoring
Patnode, C. D., Evans, C. V., Senger, C. A., Redmond, N., & Lin, J. S. (2017). Behavioral Counseling to Promote a Healthful Diet and	Assess the impacts of behavioral counseling on cardiovascular disease prevention in adults	Eighty-eight randomized clinical trials of behavioral interventions were selected for the study.	Systematic review	Behavioral counseling has positive health outcomes for individuals with overweight and obese.	Level 1: a systematic review	Limited randomized clinical trials of behavioral interventions	Yes, it provides insight into behavioral counseling and weight management

Article Title, Author, etc. (Current APA Format)	Study Purpose	Sample (Characteristics of the Sample: Demographics, etc.)	Methods	Study Results	Level of Evidence (Use Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change? (Yes or No) Provide Rationale.
Physical Activity for Cardiovascular Disease Prevention in Adults Without Known Cardiovascular Disease Risk Factors: Updated Systematic Review for the U.S. Preventive Services Task Force. Agency for Healthcare Research and Quality (U.S.).	with weight management issues						

Article Title, Author, etc. (Current APA Format)	Study Purpose	Sample (Characteristics of the Sample: Demographics, etc.)	Methods	Study Results	Level of Evidence (Use Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change? (Yes or No) Provide Rationale.
Thomsen, M. N., Astrup, A., Holst, J. J., Madsbad, S., Magkos, F., Haugaard, S. B., & Krarup, T. (2022). Long-term outcomes of dietary carbohydrate restriction for HbA1c reduction in type 2 diabetes mellitus are needed. Reply to Kang J and Ma E	Examine long-term outcomes of dietary carbohydrate restriction for HbA1c reduction in type 2 diabetes mellitus	30 studies were used for the study	Meta-analysis	Dietary restriction has the potential to reduce the risk of developing chronic diseases.	Level 1: A meta-analysis	The sample studies had limited data	Yes, it provides critical information about dietary carbohydrate restriction.

Article Title, Author, etc. (Current APA Format)	Study Purpose	Sample (Characteristics of the Sample: Demographics, etc.)	Methods	Study Results	Level of Evidence (Use Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change? (Yes or No) Provide Rationale.
[letter]. Diabetologia, 65(6), 1060–1062. https://doi.org/10.1007/s00125-022-05689-3							
Huang, S., Shi, K., Ren, Y., Wang, J., Yan, W. F., Qian, W. L., Yang, Z. G., & Li, Y. (2022). Association of the magnitude of weight loss and	Analyze the association of the magnitude of weight loss and weight variability	30 eligible studies were included in the study	Systematic review	Significant weight loss was associated with a reduced risk of developing chronic diseases and mortality.	Level 1: a systematic review	Few articles were eligible for inclusion	Yes, it analyses crucial details regarding weight management and chronic diseases.

Article Title, Author, etc. (Current APA Format)	Study Purpose	Sample (Characteristics of the Sample: Demographics, etc.)	Methods	Study Results	Level of Evidence (Use Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change? (Yes or No) Provide Rationale.
weight variability with mortality and major cardiovascular events among individuals with type 2 diabetes mellitus: a systematic review and meta-analysis. Cardiovascular diabetology, 21(1), 78. https://doi.org/10.1186/s12933-022-01503-x	with mortality and major cardiovascular events						

Article Title, Author, etc. (Current APA Format)	Study Purpose	Sample (Characteristics of the Sample: Demographics, etc.)	Methods	Study Results	Level of Evidence (Use Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change? (Yes or No) Provide Rationale.
Lean ME, Leslie WS, Barnes AC, et al. (2019) Durability of a primary care-led weight-management intervention for the remission of type 2 diabetes: 2-year results of the DiRECT open-label, cluster-randomized trial. Lancet Diabetes Endocrinol. 7(5):344–355. DOI: 10.1016/S2213-	Assess the durability of a primary care-led weight management intervention	The study used 149 participants selected using the random cluster technique	Open-label, cluster randomized control trial	Primary care-led weight management intervention has significant implications for health outcomes.	Level 2: a randomized trial	Intervention required a two-year trial for findings to be conclusive	Yes, it discusses an intervention that focuses on weight management, which is the primary focus of the study

Article Title, Author, etc. (Current APA Format)	Study Purpose	Sample (Characteristics of the Sample: Demographics, etc.)	Methods	Study Results	Level of Evidence (Use Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change? (Yes or No) Provide Rationale.
8587(19)30068-3. - DOI - PubMed							
Bonn, S., Licitra, G., Bellocco, R., & Trolle Lagerros, Y. (2022). Clinical Outcomes Among Working Adults Using the Health Integrator Smartphone App: Analyses of Prespecified Secondary Outcomes in a Randomized	Evaluate the effectiveness of using health integrator smartphone applications in a clinical setting	The subjects were randomized into two groups, one consisting of 205 individuals and the other consisting of 191 individuals.	A 3-armed parallel randomized controlled trial	Health improvements were observed among participants using telemonitoring for weight management.	Level 2: a randomized trial	Self-monitoring allows the participant to submit false information leading to false data.	Yes, it provides insight into telemonitoring, a core aspect of the study.

Article Title, Author, etc. (Current APA Format)	Study Purpose	Sample (Characteristics of the Sample: Demographics, etc.)	Methods	Study Results	Level of Evidence (Use Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change? (Yes or No) Provide Rationale.
Controlled Trial. Journal of medical Internet research, 24(3), e24725. https://doi.org/10.2196/24725							
Jiwani, R., Wang, J., Li, C., Dennis, B., Patel, D., Gelfond, J., Liu, Q., Siddiqui, N., Bess, C., Monk, S., Serra, M., & Espinoza, S. (2022). A	To determine the feasibility of a behavioral lifestyle intervention enhanced with mobile	The study uses 20 randomly selected participants	Single-arm, experimental design	Mobile health technology for self-monitoring is effective in weight management programs since they support	Level 2: Experimental Design	A limited number of participants and two participants did not complete the study.	Yes, the study provides evidence for the feasibility of mobile health technology

Article Title, Author, etc. (Current APA Format)	Study Purpose	Sample (Characteristics of the Sample: Demographics, etc.)	Methods	Study Results	Level of Evidence (Use Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change? (Yes or No) Provide Rationale.
Behavioral Lifestyle Intervention to Improve Frailty in Overweight or Obese Older Adults with Type 2 Diabetes: A Feasibility Study. The Journal of frailty & aging, 11(1), 74–82. https://doi.org/10.14283/jfa.2021.17	health technology for self-monitoring in weight management.			lifestyle and behavioral changes.			for self-monitoring

Article Title, Author, etc. (Current APA Format)	Study Purpose	Sample (Characteristics of the Sample: Demographics, etc.)	Methods	Study Results	Level of Evidence (Use Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change? (Yes or No) Provide Rationale.
Cucciniello, M., Petracca, F., Ciani, O., & Tarricone, R. (2021). Development features and study characteristics of mobile health apps in managing chronic conditions: a systematic review of randomized trials. NPJ digital medicine, 4(1), 144.	Assess the feasibility of mobile health app in the management of chronic conditions	69 studies were identified for the study	Traditional randomized control trial design	mobile health apps facilitate the management of chronic conditions and promote positive health outcomes			Yes, it provides evidence for the feasibility of mobile health technology

Article Title, Author, etc. (Current APA Format)	Study Purpose	Sample (Characteristics of the Sample: Demographics, etc.)	Methods	Study Results	Level of Evidence (Use Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change? (Yes or No) Provide Rationale.
https://doi.org/10.1038/s41746-021-00517-1							
Franz MJ, Boucher JL, Rutten-Ramos S, VanWormer JJ. Lifestyle weight-loss intervention outcomes in overweight and obese adults with type 2 diabetes: a systematic review and meta-	Determine the impacts of lifestyle weight-loss intervention on health outcomes and quality of life	The study used 6,754 randomly selected participants	Randomized clinical trial	Lifestyle changes for individuals with obesity lead to positive health outcomes and improved quality of life.		The study conducted 11 trials, thus, consuming a lot of time and resources	Yes, the study determined the impacts of lifestyle changes on the quality of life and health outcomes

Article Title, Author, etc. (Current APA Format)	Study Purpose	Sample (Characteristics of the Sample: Demographics, etc.)	Methods	Study Results	Level of Evidence (Use Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change? (Yes or No) Provide Rationale.
analysis of randomized clinical trials. J Acad Nutr Diet. 2015;115(9):1447–1463. DOI: 10.1016/j.jand.2015.02.031. - DOI - PubMed							
Scott, I. A., Scuffham, P., Gupta, D., Harch, T. M., Borchi, J., & Richards, B. (2020). Going	Analysis of effectiveness and quality of mobile apps in	19 studies were identified for the study	Systematic review	There is consistent evidence to support the use of mobile apps in the	Level 1: a systematic review	Limited studies discussing the use of the mobile app in the	Yes, evidence supports the use of mobile apps in managing

Article Title, Author, etc. (Current APA Format)	Study Purpose	Sample (Characteristics of the Sample: Demographics, etc.)	Methods	Study Results	Level of Evidence (Use Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change? (Yes or No) Provide Rationale.
digital: a narrative overview of mobile apps' effects, quality, and utility in chronic disease self-management. Australian health review: a publication of the Australian Hospital Association, 44(1), 62–82. https://doi.org/10.1071/AH18064	chronic disease self-management			management of chronic conditions.		management of chronic conditions	chronic conditions.

Article Title, Author, etc. (Current APA Format)	Study Purpose	Sample (Characteristics of the Sample: Demographics, etc.)	Methods	Study Results	Level of Evidence (Use Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change? (Yes or No) Provide Rationale.

REFERENCES

American Association of Colleges of Nursing. (2006). *American association of colleges of nursing (AACN) > doctor of nursing practice > DNP essentials*. Aacnnursing.org. https://www.aacnnursing.org/DNP/DNP-Essentials

Davis R., Campbell, R., Hildona, Z., Hobbs, L., & Michie S. (2015). A scoping review of behavior and behavior change theories across the social and behavioral sciences. *Health Psychology ReviewHealth Psychology Review, 9(*3), 323–344. https://doi.org/10.1080/17437199.2014.941722

Dounavi, K., & Tsoumani, O. (2019). Mobile health applications in weight management: a systematic literature review. *American Journal of preventive medicine*, *56*(6), 894–903.

Følling, I. S., Oldervoll, L. M., Hilmarsen, C., & Ersfjord, E. (2021). Exploring the use of activity monitors for patients with obesity during weight-loss treatment - a qualitative study. *BMC Sports Science, Medicine & Rehabilitation, 13*(1), 25. https://doi.org/10.1186/s13102-021-00253-9

Latner, J. D., & Ciao, A. C. (2014). Weight-loss history as a predictor of obesity treatment outcome: prospective, long-term results from behavioral, group self-help treatment. *Journal of Health Psychology*, *19*(2), 253–261. https://doi.org/10.1177/1359105312468191

Michaud, T. L., Ern, J., Scoggins, D., & Su, D. (2021). Assessing the Impact of Telemonitoring-Facilitated Lifestyle Modifications on Diabetes Outcomes: A Systematic Review and Meta-Analysis. *Telemedicine Journal and E-health: The Official Journal of the American Telemedicine Association, 27*(2), 124–136. https://doi.org/10.1089/tmj.2019.0319

Ng, S. (2017). *The essentials of the DNP program - DNP Nursing Solutions*. DNP Nursing Solutions. http://www.dnpnursingsolutions.com/dnp-nursing-program-overview/dnp-program-essentials/

Office of Minority Health. Obesity and African Americans - The Office of Minority Health. (n.d.). Retrieved August 22, 2022, from https://minorityhealth.hhs.gov/omh/browse.aspx?lvl=4&lvlid=25

Patel, M. L., Hopkins, C. M., Brooks, T. L., & Bennett, G. G. (2019). Comparing Self-Monitoring Strategies for Weight Loss in a Smartphone App: Randomized Controlled Trial. *JMIR mHealth and uHealth, 7*(2), e12209. https://doi.org/10.2196/12209

Sallis, R., Franklin, B., Joy, L., Ross, R., Sabgir, D., & Stone, J. (2015). Strategies for promoting physical activity in clinical practice. *Progress in Cardiovascular Diseases, 57(*4), 375–386. https://doi.org/10.1016/j.pcad.2014.10.003

Vaidya, S., & Mirza, N. (2021, May 16). Obesity. *The Washington Post* https://go.openathens.net/redirector/liberty.edu?url=https://www-proquest-com.ezproxy.liberty.edu/newspapers/obesity/docview/2527712591/se-2

Wang, J., Cai, C., Padhye, N., Orlander, P., & Zare, M. (2018). A Behavioral Lifestyle Intervention Enhanced With Multiple-Behavior Self-Monitoring Using Mobile and Connected Tools for Underserved Individuals With Type 2 Diabetes and Comorbid Overweight or Obesity: Pilot Comparative Effectiveness Trial. *JMIR mHealth and uHealth, 6*(4), e92. https://doi.org/10.2196/mhealth.4478