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### It Takes Heart: Cardiovascular Disease Risk Reduction in the Underserved and Underinsured Population of Louisville, Kentucky.

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**It Takes Heart: Cardiovascular Disease Risk Reduction in the Underserved and Underinsured Population of Louisville, Kentucky**

by


Emily Storms Shutt

Paper submitted in partial fulfillment of the requirements for the degree of

Doctor of Nursing Practice

School of Nursing, University of Louisville

7/20/2022

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**Dedication**

*This project is dedicated to my husband, Bryan, who has always been my biggest cheerleader. Without his constant encouragement, love, and support I wouldn't be where I am today. I also must thank our golden retriever, Brady, who has listened to enough nursing lectures to have earned a doctorate himself.*

### **Acknowledgements**

Thank you to Dr. Imburgia, Anita Keating, and the entire Have a Heart Clinic. Your dedication in eliminating health disparities inspired this project. It takes heart.

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### **Abstract**

**Background:** Cardiovascular disease is responsible for half a million deaths per year in the United States. Both the state of Kentucky and city of Louisville have statistics of the presence of cardiovascular disease that are higher than the national average.

**Setting:** This project took place at Have a Heart Clinic in downtown Louisville, Kentucky.

**Purpose:** The purpose of this project was to decrease CVD risk factors in Louisville's underserved neighborhoods.

**Procedures:** A random sampling of patients attended the free CVD health screening. Cardiometrics were obtained and the information was inputted to the American College of Cardiology's free atherosclerotic CVD online risk calculator. Patients identified as intermediate or high risk attended a motivational interviewing session, utilizing the American Heart Association's Life's Simple 7 steps to induce health change behaviors.

**Measures:** Participants' CVD risk score

**Results:** A summative evaluation was unable to be performed due to a lack of patient follow-up data. Patient's demographic data along with a formative evaluation is discussed.

**Discussion:** The key finding of the study was low patient retention.

**Keywords:** Cardiovascular disease, motivational interviewing, determinants of health, underserved

### **It Takes Heart: Cardiovascular Risk Reduction in the Underserved and Underinsured Population of Louisville, KY**

Despite advances in medicine, cardiovascular disease (CVD) remains the number one killer of both men and women in the United States, accounting for half a million deaths per year (Center for Health Equity, 2014). According to the American Heart Association (AHA), cardiac arrest alone kills more people nationally every year than lung cancer, breast cancer, colon cancer, prostate cancer, pneumonia, and auto and firearm accidents combined (American Heart Association, 2019). CVD impacts all ethnic groups, costing the United States healthcare system billions of dollars annually (American Heart Association, 2019). Kentucky has the third highest death rate from heart attacks in the country (American Heart Association, 2019). CVD caused 23% of all deaths in Kentucky in 2014, making it the second leading cause of mortality, preceded only by cancer (American Heart Association, 2019). In the city of Louisville, Kentucky, CVD related deaths are also higher than the national average, at 8% nationally, compared to 14% in Louisville (Center for Health Equity, 2014).

Research suggests that health follows a social ladder, with those at the top fairing the best on the socioeconomic ladder, and those at the bottom fairing worse (Center for Health Equity, 2014). Blacks and Hispanics, those with lower socioeconomic status, limited health literacy, and lower education level are medically undermanaged and undertreated, especially in terms of primary prevention of CVD (Lloyd-Jones et. al, 2018). The 2019 American College of Cardiology and AHA's Guidelines on the Primary Prevention of Cardiovascular Disease emphasize the importance of the social determinants of health that cause barriers to care (American College of Cardiology, 2019). These determinants of health include low health literacy, or the degree to which individuals have the capacity to obtain, process, and understand basic health information needed to make appropriate health decisions (American College of

Cardiology, 2019). Low health literacy is most prevalent among older adults, minority populations, those who have low socioeconomic status, and the medically underserved (American College of Cardiology, 2019). Financial distress is also a barrier to care. This is a condition in which individuals do not have sufficient income and are unable to meet or cannot pay their financial obligations (American College of Cardiology, 2019). Cultural factors also play a role in health care. Acceptance of preventative health care, health promotion measures, diagnoses, self-management, health choices, and compliance are aspects of cultural beliefs that can affect how a person will seek care, and from whom. Finally, socioeconomic status greatly affects health status. Aspects of socioeconomic status includes income, education, employment, community safety, and social support. These factors can significantly alter lifestyle choices, affecting people's ability to make healthy choices, housing, manage stress, and even afford medical care (American College of Cardiology, 2019). Those who experience these barriers can have health problems diagnosed at a later stage as well as increased severity of chronic conditions (Louisville Metro Public Health and Wellness, 2014).

Geographic map clustering of Louisville illustrates the distribution of rates of death from CVD, with the gap between the highest neighborhood rate of deaths and lowest neighborhood rate almost three-fold (Center for Health Equity, 2014). When the map highlighting death from CVD is compared with the map that exhibits income, it becomes clear that residents of the more impoverished areas of the city are dying from CVD at a higher rate than residents living in areas with greater incomes (2014). Statistics from the 2010 Kentucky Behavioral Risk Survey only further exemplify the problem. The survey found 17% of Louisville Metro adults reported living without health insurance (Louisville Metro Public Health and Wellness, 2014). This rate is higher than both the national average, at 8.5%, and the Kentucky state average, at 11.9%



(Centers for Disease Control and Prevention, 2018). Furthermore, the 2014 Louisville Metro Health Equity Report found that blacks, rural residents, and people with incomes between \$10,000 – 20,000 were less likely to have coverage (Center for Health Equity, 2014). In 2010, the AHA identified impact goals for the next decade (American Heart Association, 2019). These goals emphasize improving the cardiovascular health of all Americans by 20% and reducing deaths from CVD and stroke by 20% (American Heart Association, 2019). To do this, the AHA suggests targeting those individuals with the greatest cardiovascular risk and focusing on CVD prevention with population-level health promotion initiatives (Arnett et. al, 2019).

### **Problem**

Kentucky ranks consistently as one of the least healthy states in the country with CVD as a main cause of death. Those with lower socioeconomic status, decreased health literacy, lesser education level, the uninsured, and Blacks and Hispanics are medically undermanaged and undertreated, especially regarding primary prevention of CVD. Given the concern about CVD risk factors both locally and globally, primary prevention of CVD with multifaceted practical lifestyle and CVD prevention interventions must be the focus, including evidence-based strategies that can be delivered to underserved communities (Arnett et. al, 2019). Motivational interviewing is part of effective CVD prevention strategies that can be delivered in underserved communities.

### ***Literature Review***

Using PubMed database, after an initial search on September 12, 2020, key terms were identified and included NHANES, cardiovascular screening, community health education, health literacy, cardiovascular diseases, and chronic disease. A Pubmed MeSH search included: (nutrition survey [MeSH Terms]) AND (cardiovascular diagnostic techniques [MeSH Terms])

AND (community education [MeSH Terms]), AND (health literacy [MeSH Terms]), (cardiovascular diseases [MeSH Terms]), AND (chronic diseases [MeSH Terms]). This initially led to over 300 articles, and after review, many of the articles focused heavily on the term cardiovascular diagnostic techniques, which is not the focus of this project's intervention. Therefore, the search was done, using all previous MeSH Terms, but leaving off (cardiovascular diagnostic techniques [MeSH Terms]). The search was completed again on February 4, 2021, to assess for any new pertinent literature, of which none was found. PubMed initially yielded 681 articles. The following limitations were applied to the PubMed search and all subsequent database searches. Articles from the last five years, human subjects, English speaking, adults 19-80 years old, and randomized controlled trials, meta-analysis, systemic reviews, and clinical trials only were included. With these limitations, 18 articles were found through PubMed; 10 articles through OVID (no duplicates); five articles were from ClinicalKey, with one duplicate, bringing the total to four; and 11 articles from CINAHL, with two duplicates, resulting in nine additional articles. In total, therefore, 42 articles are available. The list was further narrowed down with review of the abstracts, and finally grading of the evidence via the John Hopkins Level and Quality of Evidence model (Appendix B), for a total of ten articles.

PubMed database was used to conduct a final search for relevant literature on November 18, 2021. The following MeSH Terms were used (motivational interviewing [MeSH Terms]) AND (cardiovascular [MeSH Terms]). Articles from the last five years, human subjects, written in English, adults 19-80 years old, and meta-analysis only were included. This yielded five articles. The list was further narrowed down with review of the abstracts, including only motivational interviewing in cardiovascular disease management. Finally grading of the evidence

was performed via the John Hopkins Level and Quality of Evidence model, for a total of three additional articles for use.

### *Synthesis*

Primary prevention of CVD, including risk modification with lifestyle changes and implementation of guideline based medical therapy is known to delay or prevent CVD (Lloyd-Jones et. al, 2017). Decades of research has demonstrated that antihypertensives reduce atherosclerotic CVD risk (Lloyd-Jones et. al, 2017). Likewise, in the past 20 years, statin medications have emerged as safe and highly effective medications for atherosclerotic CVD primary prevention among essentially all groups at intermediate or high risk for atherosclerotic CVD (Lloyd-Jones et. al, 2017). Tobacco cessation substantially reduces atherosclerotic CVD risk, and effective drugs and behavioral interventions can improve rates of smoking cessation (Lloyd-Jones et. al, 2017). A Cochrane Handbook of Systematic Review done by the Department of Health and Human Services evaluated the performance of an overview of systematic reviews for each of the following interventions for primary atherosclerotic CVD prevention (Lloyd-Jones et. al, 2017). Blood pressure-lowering therapy was associated with a 16% reduction in coronary heart disease events (RR, 0.84; 95% CI, 0.79–0.90), and a 36% reduction in stroke (RR, 0.64; 95% CI, 0.56–0.73) (Lloyd-Jones et. al, 2017). For cholesterol, high-quality evidence for statins revealed a 25% reduction in major atherosclerotic CVD events (RR, 0.75; 95% CI, 0.70–0.81), and reductions in fatal and nonfatal coronary heart disease and stroke events (Lloyd-Jones et. al, 2017). Finally, for smoking, estimates for risk reduction associated with smoking cessation are 15% at 1 year (> 6–18 months' follow-up), 27% at 2 years (> 18–30 months), 38% at 3 years (>30–42 months), and 47% at 4 years (> 42 months) (Lloyd-Jones et. al, 2017).

A review of the literature reveals motivation as an important factor in CVD management, as many of the risk factors for CVD are behavioral consequences (Huang et. al, 2017). Community-based interventions for CVD management in high-risk individuals has been well studied with great success, many through nurse-led education and coaching programs (Huang et. al, 2017). Interventions in which a combined cardiovascular screening, education sessions, and motivational interviewing and coaching techniques are employed have shown the most progress in lowering patient's cardiovascular risk factors (Huang et. al, 2017; Masterson et. al, 2016).

One meta-analysis of 15 randomized controlled trials examined effects of health coaching on physical activities, dietary behaviors, health responsibility, stress management, and smoking behaviors among populations with CVD risk factors (An & Song, 2020). Health coaching was found to induce positive behavioral changes among individuals with cardiovascular risk factors (An & Song, 2020). Health coaching should be delivered by either expert or peer coaches trained in health coaching and/or motivational interviewing (An & Song, 2020). Motivation and compliance strategies to initiate and maintain health behaviors can be easily delivered via telephone calls, text messages, or short-term face-to-face coaching (An & Song, 2020). The more frequent patient follow-up either every few weeks or monthly, has shown to support and empower patient's self-care and self-maintenance. Combining frequent follow-up, either in person, or via phone, and utilizing motivational interviewing and coaching strategies better supports patients trying to reach their goals (Masterson et. al, 2016). Additionally, goal setting must be specific and individualized (Masterson et. al, 2016; Abbott et. al, 2018).

Health coaching and motivational interviewing assists with goal setting for lifestyle modification and has a positive effect on cardiovascular biomarkers (Patnode et. al, 2017). One systematic review of 88 trials found statistically significant benefits on blood pressure,

cholesterol, and BMI at both six and twelve months (Patnode et. al, 2017). These findings could translate into long-term CVD risk reduction (Patnode et. al, 2017). Enhanced quality of life is an effect that is also well documented and is independent of risk reduction (Masterson et. al, 2016).

Culturally specific interventions are an important aspect of CVD prevention and treatment (Abbott et. al, 2018; Kadula et. al, 2015). Many minority populations, including blacks and Asians, are often underserved, and undertreated regarding CVD (Abbott et. al, 2018; Kadula et. al, 2015). Therefore, interventions designed to target multiple risk factors better facilitates elimination of cardiovascular related health disparities (Abbott et. al, 2018; Kadula et. al, 2015). This includes assessing patient's intentions, attitudes, norms, and self-efficacy regarding lifestyle modification for implementing primary prevention measures (Abbott et. al, 2018).

### *Gaps*

Motivational interviewing has been used primarily for the management of health behaviors in those with behavioral disorders, including drug and alcohol abuse, weight loss, and treatment compliance, as well as for smoking cessation (Lloyd-Jones et. al, 2017). Benefits of motivational interviewing have been demonstrated on these behavioral habits; however, it is difficult to isolate the effects of motivational interviewing due to many studies' incorporation of a multitude of interventions. Many of the risk factors for CVD are behavioral consequences, such as being overweight or smoking. As discussed, motivational interviewing has demonstrated a positive effect on cardiac biomarkers. However, one risk behavior that has had varied results remains cessation of smoking. This may be because many studies use multiple interventions in conjunction with motivational interviewing to combat smoking habits. For example, motivational interviewing for smoking cessation has been combined with other interventions such as medical

therapy, hypnosis, and behavioral therapy. This makes isolation of the results of motivational interviewing difficult.

Cessation of smoking has been identified by the AHA as the most preventable cause of death in the United States (American Heart Association, 2021). It is linked to one third of all deaths from CVD (American Heart Association, 2021). Cessation of smoking lowers the risk of CVD by 50% after just one year (American Heart Association, 2021). As 34.1 million Americans continue to smoke, it is important to discover whether motivational interviewing alone has a positive effect on smoking cessation (American Heart Association, 2021).

### **Summary/Justification**

Assessment of atherosclerotic CVD risk is the foundation of primary prevention (American College of Cardiology, 2019). Current practice at the project site is to perform the community CVD risk screening and compile the patients' data to determine their 10-year American College of Cardiology atherosclerotic CVD risk score. Following the screening, group education regarding CVD prevention is given via an AHA patient education video immediately for all patients, regardless of their risk score. Research has demonstrated that this strategy is effective, in that patients appear to be at a heightened point of motivation during the time when cardiovascular procedures are being performed and results are being given (Gianos, et. al, 2018). The AHA's new goal is to focus on patients with the highest cardiovascular risk. Therefore, patients identified as intermediate or high risk per the American College of Cardiology atherosclerotic CVD guidelines, 1:1 patient follow-up will be scheduled for one month post screening. The 1:1 consultation will combine motivational interviewing and coaching for optimization of cardiovascular risk factors through behavior change strategies aimed to increase motivation, self-efficacy, and confidence (Gianos, et al, 2018). These consultations will also

review knowledge of atherosclerotic CVD risk factors, guideline-directed medical therapy and adherence to medication regimens and lifestyle change techniques. The purpose of the coaching sessions will be to develop an effective, trusting relationship between the patient and student coach as lifestyle modification occurs.

### **Purpose and Specific Aims**

The purpose of this project is to decrease CVD risk factors in Louisville's underserved and underinsured neighborhoods. A short-term objective for this project is at 1 month post program, patients will have achieved at least one of their two personal set goals. This is achievable by frequent patient follow-up and motivational interviewing and coaching. This is measurable by reassessing patient's goals at one and three months. The intermediate objective is at 3 months post program, there will be a change in at least one biomarker. This is achievable by modification of personal risk factors by frequent patient follow-up and motivational interviewing and coaching in addition to guideline-based medical therapy. A change in cholesterol can be seen in as little as three to four weeks if medication is taken every day as prescribed (Lloyd-Jones et al, 2019). Likewise, a change in blood pressure can also be seen in as little as four weeks (Lloyd-Jones et al, 2019). This objective measurable by comparison of American College of Cardiology atherosclerotic CVD assessment scores pre and post program. The long-term outcome of this project a decrease in the patient's overall atherosclerotic CVD risk through reduction of modifiable risk factors within 12 months. This is achievable through attainment of personal goals for behavioral modification and guideline-based medical therapy. This is measurable by comparison of American College of Cardiology atherosclerotic CVD risk assessment scores pre and post program.

### **Theoretical Framework**

The Health Promotion Model will be used as the theoretical framework for this project. The model states health is a positive dynamic state rather than simply the absence of disease (Petiprin, 2020). Health promotion is directed at increasing a patient's level of well-being by focusing on three areas: individual characteristics and experiences, behavior-specific perceptions, and behavioral outcomes (Petiprin, 2020). According to the model, each person has unique personal characteristics and experiences that affect their actions, and these characteristics affect attitude and motivation regarding health (Petiprin, 2020). Health promoting behavior is the desired behavioral outcome of the model. These behaviors should result in improved health, enhanced functional ability, and enhanced quality of life (Petiprin, 2020). The Health Promotion Model makes four important assumptions.

The first assumption is individuals seek to actively regulate their own health behavior (Petiprin, 2020). According to the model, people must have a conscious commitment to a plan of action, or intention and identification of, a planned strategy that leads to implementation of health promoting behavior (Petiprin, 2020). Individualized goal setting through motivational interviewing and coaching will help patients create this plan of action by focusing on one to two health change behaviors at a time. A plan to change the behavior will be formulated by the student and patient.

The second assumption states individuals interact with the environment, both transforming it, as well as being transformed by it over time (Petiprin, 2020). Competing demands are alternative behaviors over which individuals have little control because there are environmental factors occurring, such as work or family responsibilities (Petiprin, 2020). Included in the 1:1 motivational interviewing and coaching meetings will be interventions to plan for these factors so the individual can remain in control and on track with his or her health goals.



The third assumption is health professionals constitute a part of the interpersonal environment, influencing people through their life span (Petiprin, 2020). Interpersonal influences are behaviors, beliefs, or attitudes that influence one person from another person (Petiprin, 2020). Interpersonal influences include norms (expectations of significant others), social support (instrumental and emotional encouragement), and modeling (vicarious learning through observing others engaged in a particular behavior) (Petiprin, 2020). Primary sources of interpersonal influences are families and peers, but also healthcare providers (Petiprin, 2020). Frequent follow-up with the healthcare provider reinforces positive interpersonal influences over negative health behaviors through positive reinforcement and reevaluation of previously set health goals.

Finally, the fourth assumption states self-initiated reconfiguration of the person-environment interactive patterns is essential to changing behavior (Petiprin, 2020). Patients can modify cognitions, affect, and the interpersonal and physical environment to create incentives for health actions (Petiprin, 2020). Situational influences are personal perceptions that can facilitate or impede behavior (Petiprin, 2020). They include perceptions of available options and characteristics of the environment in which given health promoting is proposed to take place (Petiprin, 2020). Situational influences may have direct or indirect influences on health behavior (Petiprin, 2020). Planning for negative situational and environmental influences will occur in the 1:1 patient-student meetings.

The Health Promotion Model is well aligned with the project's main objectives as a theoretical framework. To meet both the short-term and intermediate outcomes, the model states it is important to first assess the patient's own specific attitudes toward health. Perceived self-efficacy is a major determinant of successful behavior change (Bandura, 1977). This includes

individual health goals and beliefs and motivation toward health improvement (Bandura,1977). Without the behavior change, the remainder of the outcomes cannot be met. Self-efficacy enhancement will be incorporated into the intervention in form of evidence-based motivational interviewing and coaching techniques. The communication technique of motivational interviewing has been used with success to modify cardiovascular risk factors by assisting patients in increasing their self-efficacy and setting individualized goals to improve their cardiovascular health (Murphy et. al, 2015).

To meet the project's long-term goal, patients need a consistent healthcare provider. The healthcare provider will provide routine follow-up and personalized goal-related treatment plans to enable modification of individual risk factors to empower patients to continue positive behavior changes. This will facilitate improvement cardiovascular health of at risk and vulnerable populations by lowering their atherosclerotic CVD risk score and overall cardiovascular risk.

### **Design**

The project design is a longitudinal quantitative study. A convenience sampling was used to gain participants. Fliers promoting the free cardiovascular screening clinic were dispersed at churches in downtown Louisville near the Have a Heart Clinic in spring 2022. The clinic contact number was on the flier with instructions for those interested to call the number to register for the screening. Those who attended the free screening signed a consent to treat form. The provider explained and obtained consent. The forms were available in Spanish, and iPad translators were available. The teach-back method was used to ensure comprehension. The teach-back method is a communication tool used by healthcare providers to confirm whether a patient understands what is being explained (Agency for Healthcare Research and Quality, 2020). If a

patient understands, they can teach-back the information accurately (Agency for Healthcare Research and Quality, 2020)

All patients who attended the cardiovascular clinic were screened and attend edthe clinic's pre-established group education format, regardless of their risk assessment score. Patients established as low risk became patients of the clinic and were scheduled for a six-month follow-up appointment. They will be medically managed as indicated per the guidelines and were encouraged to continue lifestyle modification per the AHA guidelines. Selection criteria for the intervention group included adult patients, any race or ethnicity, any sex, age 40 and over, who were identified as intermediate or high risk per the 10-year American College of Cardiology atherosclerotic CVD guidelines.

### **Setting**

The project took place at Have a Heart Clinic in downtown Louisville. Have a Heart is the only solely cardiovascular care clinic in Kentucky. Have a Heart has six full time employees and is otherwise run completely by volunteers. They offer all aspects of cardiovascular care, including stress testing, echocardiogram, and carotid ultrasound. The clinic treats all patients regardless of their insurance status, income, or ability to pay. They do this by offsetting the cost of free care with revenue from billable services, such as Medicare, Medicare, and private insurance, as well as through donations and grants. The clinic has over 13 years of service, including over 5,500 patient encounters, 15,000 volunteer hours, and over 600,000 dollars of free outpatient cardiovascular services provided. They have performed over 300 hundred cardiovascular screenings in Louisville since 2018.

### **Culture**

The project aligns with the Have a Heart Clinic’s vision to create a “long-term sustainable Coordinated Care Model that prioritizes the physical, mental, social and emotional needs of the underserved through a variety of treatments with heart health at the center.” This is accomplished through screening, education, and routine follow-up and holistic and continuity of care. The clinic’s mission is to be “a place where volunteer medical professionals, new and experienced, will provide patient care, conduct research, and create innovative treatment models for the future.” This project exemplifies this statement thorough application of research and evidence-based practice, with sensitivity to the social determinants of health that may include specific barriers to care, limited health literacy, financial stressors, cultural influences, education level, and other socioeconomic risk factors related to health goals (American College of Cardiology, 2019).

### ***Facilitators***

The project had support from key stakeholders at the Have a Heart Clinic, including the physician director and the clinic and volunteer coordinator. Additionally, the staff at Have a Heart is very invested in their patients, as the clinic is almost completely run by volunteers. A goal of the clinic is to be a “place where volunteer medical professionals, new and experienced, will provide patient care, conduct research and create innovative treatment models for the future.” This has created an environment that is continually finding new ways to improve and follow current and best practices.

### ***Barriers***

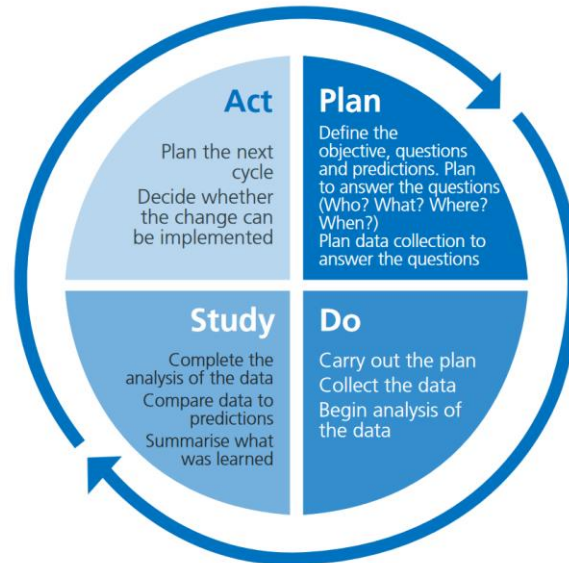
A potential barrier to implementation is the COVID-19 pandemic, as patients remain fearful of scheduling doctor’s visits. Other barriers are the ability to contact patients, as some

patients are houseless, do not have telephones, or do not have transportation to and from clinic appointments. These barriers caused difficulty with both phone and in person follow-up.

### **Methods**

The Iowa Model of Evidence Based Practice will be followed for implementation and dissemination of the project utilizing the plan, do, study, act cycle (Iowa Model Collaborative, 2017).

- Plan – A free cardiovascular screening clinic was held to identify patient’s 10-year American College of Cardiology atherosclerotic CVD score. After scores were established, patients were identified as low, intermediate, or high risk. Intermediate and high-risk patients were scheduled for three follow-up appointments for continued education and individualized goal setting utilizing Life’s Simple Seven steps for healthier living (American Heart Association, 2019).
- Do – The screening clinics were held, and patients were scheduled for follow-up with education and goal setting at one, two, and three months.
- Study – The project leaders evaluated barriers from the screening day and follow-up appointments, meeting one-month post-clinic to discuss and identify strategies for improvement. Patient’s CVD risk and Life’s Simple Seven scores were compared from the screening day and three months post.
- Act – Data was analyzed to determine the effectiveness of the interventions. The plan, do, study, act cycle can be performed until the project has met its objectives. When the objectives are met, the plan can be applied to all future clinics.



## Procedure

Although motivational interviewing is relatively easy to learn, optimal results are achieved by those who have been trained and certified in motivational (Murphy et. al, 2016). Therefore, the provider took the continuing education course, “Motivational Interviewing: The Language of Change with Dr. Stephen Rollnick,” in December 2021 to become skilled at motivational interviewing. The student was the one executing the 1:1 coaching session. The CVD screenings were performed by nurse volunteers. Volunteers attended an education session approximately prior to the screening today. They were educated how to retrieve the following data.

- Age – asked the patient to state their age in years
- Sex – asked the patient to state their identified gender as male or female
- Race – asked the patient to state their race as white, African American, or other, as these are the options listed on the American College of Cardiology online atherosclerotic CVD risk calculator (American College of Cardiology, 2019).
- Lipid panel, including total cholesterol, LDL, HDL, and triglycerides – The Alere Cholestech LDX point of care lipid machine was used to measure lipid panels. After

- cleaning the finger with alcohol and allowing it to dry, a fingerstick was performed. The first drop of blood was wiped away with a sterile gauze. The second drop of blood was collected into a capillary tube and dispensed into the test cassette. The cassette was inserted into the machine, the run button was pressed, and results were delivered in five minutes. Patients did not fast prior to the cholesterol check. Controls are done on the machine every 24 hours per manufacturer guidelines. The quality control material used is Cholestech L.D.X. level 1 and level 2 control.
- Systolic and diastolic blood pressure – Per the AHA’s guidelines to measure blood pressure, the patient was asked to sit and relax for five minutes. The appropriately sized cuff was placed on the patient’s bare arm while he or she was sitting in an upright position with back supported, feet flat on the floor, and the arm supported at heart level on the tabletop. The bottom of the cuff was placed directly above the bend of the elbow and the nurse will take the patient’s blood pressure manually as previously instructed (American Heart Association, 2019).
  - Presence of diabetes – asked the patient if he or she has been diagnosed with diabetes (type one or two).
  - Smoking – asked the patient if he or she is a current or former cigarette smoker. Per the American College of Cardiology online atherosclerotic CVD risk calculator, a current smoker is one who smokes every day or most days, and a former smoker is one who does not currently smoke and has been abstinent for seven days in a row (American College of Cardiology, 2019).

Data was collected as described above and placed on the data collection sheet. The student then calculated each patient’s 10-year American College of Cardiology atherosclerotic CVD

score using these measurements with the free online American College of Cardiology atherosclerotic CVD calculator. After the screening, the data was entered into Have a Heart's protected electronic health record and the paper screening sheets were shredded at the clinic for protection of health information.

The 1:1 motivational interviewing and coaching sessions for identified intermediate and high-risk patients utilized Life's Simple 7, an ideal cardiovascular free health assessment developed by the AHA (American Heart Association, 2021). It identifies the seven risk factors of CVD that people can improve through lifestyle modification (American Heart Association, 2021). Cardiovascular health is characterized by the AHA as seven health metrics, consisting of four healthy habits. These include not smoking, regular physical activity, healthy diet, and healthy body weight, as well as by three healthy biomarker levels, which include an ideal blood pressure, blood glucose, and cholesterol (American Heart Association, 2021). Life's Simple 7 is useful for all patients, regardless of their risk scores, as a tool for monitoring lifestyle modification progress.

A healthy diet and exercise plan is recommended for all patients to decrease cardiovascular risk factors (Lloyd-Jones et. al, 2019). According to the AHA's Life's Simple 7 diet and lifestyle recommendations, this includes getting at least 150 minutes of vigorous physical activity each week (American Heart Association, 2019). The AHA also recommends eating an overall healthy diet plan. That is, a diet that no more than 2000 calories a day, and includes a wide variety of fruits and vegetables, whole grains, healthy sources of protein (mostly plants such as legumes and nuts, seafood, low-fat or nonfat dairy, and for meat and poultry, ensuring it is lean and unprocessed), liquid oils, and minimally processed foods, sugars, and salt (American Heart Association, 2019). Following these recommendations should help patients maintain healthy



weight, a BMI of 18.5 kg/m<sup>2</sup> to 24.9 kg/m<sup>2</sup> (American Heart Association, 2019). The AHA further explains that in following these lifestyle recommendations, the three healthy biomarkers should be in defined range; that is, a blood pressure of 120/80 mmhg, cholesterol of less than 200 mg/dL, and blood glucose of less than 140 mg/dL after eating (American Heart Association, 2019). Individualized lifestyle planning and goal setting for intermediate and high-risk patients focused on the Life's Simple 7 recommendations. Patients identified as low risk also received copies of Life's Simple 7 recommendations but did not receive the motivational interviewing intervention. Low risk patients were also be treated for high blood pressure, cholesterol, and blood glucose when not in defined range as above.

### **Intervention**

Patient demographics and cardio metrics were obtained by the trained nursing volunteers to calculate the patient's 10-year American College of Cardiology atherosclerotic CVD risk assessment score. These metrics included age, gender, race, lipid panel, systolic and diastolic blood pressure, and the presence of diabetes and smoking (American College of Cardiology, 2019). The atherosclerotic CVD risk assessment score is a national guideline developed by the American College of Cardiology (American College of Cardiology, 2019). It is a calculation of 10-year risk of having a cardiovascular problem, such as a heart attack or stroke (American College of Cardiology, 2019). The risk score is given as a percentage and represents the chance of having heart disease or stroke in the next 10 years (American College of Cardiology, 2019). Low risk is defined as < 5% risk of death in the next ten years, intermediate risk is defined as 5% – 7.4 %, and high risk is defined as > 20% (American College of Cardiology, 2019). The American College of Cardiology has developed guideline-based therapies for each category. Scores were determined by inputting each patient's collected data into the free online American College of Cardiology atherosclerotic CVD risk calculator. The scores were immediately

communicated to the patients via the provider. Patients who were found to be hypertensive or with hyperlipidemia were placed on guideline based medical therapy per the American College of Cardiology's recommendations.

Per the American College of Cardiology's recommendations, low-risk patients do not need medical therapy unless their LDL is greater than or equal to 190 (American College of Cardiology, 2019). According to the American College of Cardiology, if the LDL is greater than 190, a low intensity statin can be prescribed. A low intensity statin will cause up to a 30% reduction in LDL. Intermediate-risk patients are recommended to be started on moderate-intensity statin therapy (American College of Cardiology, 2019). A moderate intensity statin will cause a 30 – 50% reduction in LDL. High-risk patients are recommended to be started on high intensity statin therapy (American College of Cardiology, 2019). High intensity statins will reduce the LDL by greater than 50%. Additionally, high-risk patients with primary hypertension should be started on antihypertensive therapy (Lloyd-Jones et. al, 2018). That is, a blood pressure of greater than or equal to 140/80 mmhg (Lloyd-Jones et. al, 2018).

The AHA's new goal is to target those with the highest CVD risk (American Heart Association, 2019). Therefore, patients whose score was identified low risk per the American College of Cardiology atherosclerotic CVD guidelines were inputted into the Have a Heart patient database and became patients of the clinic. They were scheduled for routine follow-up at either the Have a Heart Clinic, or with their primary care doctor in six months, and encouraged to utilize the Life's Simple 7 steps for a heart healthy lifestyle. Patients whose score was defined as intermediate or high-risk were be scheduled for two follow-up appointments. The first appointment was in one month. This was an individual, in-person appointment at the Have a Heart Clinic. Each patient met with 1:1 with the student. The purpose of this meeting was to

review and further discuss their American College of Cardiology atherosclerotic CVD risk score and Life's Simple 7 score. Many modifiable risk factors such as diet, exercise, and smoking are behavioral consequences. Therefore, an individualized action plan was formulated to set one to two goals for the behaviors the patient wants to address. Motivational interviewing and coaching techniques were utilized to implement behavior changes to decrease modifiable risk factors through attainment of personal goals. Each patient left with an individualized plan, complete with goals for the next follow-up appointment. Each subsequent session was used to motivate the participant toward their identified lifestyle behavior change.

A second follow-up was scheduled at two months. This follow-up was a telephone call by the project leader. Personal goals which were set at the in-person appointment were reinforced, and barriers to change that were identified at the first in-person appointment were reevaluated. If these barriers were present or if new barriers aroused, a plan was discussed to help overcome them. The final follow-up was in person in 3 months at the clinic. At this time, each patient was rescreened following the same procedures as above, and results of their American College of Cardiology atherosclerotic CVD risk scores were compared.

### **Instruments**

The 10-year American College of Cardiology atherosclerotic CVD risk assessment tool predicts baseline 10-year atherosclerotic CVD risk, projects change in atherosclerotic CVD risk that would be expected with initiation of, and adherence to evidence-based therapies, and incorporates individual patient responses to these therapies over time to allow for atherosclerotic CVD risk prediction (Lloyd-Jones et. al, 2017). The risk calculator measures age, gender, race, lipids, including total cholesterol, HDL, LDL, and triglycerides, systolic and diastolic blood pressure, and presence of diabetes and smoking (Lloyd-Jones et. al, 2017). The risk assessment

score is a critical step in the current recommended approach to primary prevention of atherosclerotic CVD by determining if a patient is borderline/low, intermediate, or high risk for the development of atherosclerotic CVD (Lloyd-Jones et. al, 2017). Risk scores are reported in percent of having a heart attack or stroke in the next ten years. Low risk is defined as < 5%, intermediate risk is defined as 5% – 7.4 %, and high risk is defined as > 20% (American College of Cardiology, 2019). American College of Cardiology guideline-based therapies are recommended for each category.

### **Outcomes**

The outcome that will be measured is the patient's American College of Cardiology atherosclerotic CVD (ACC-ASCVD) risk score. To calculate the scores, interval data will be collected, and includes age, gender, race, lipid panel, systolic, and diastolic blood pressure, measured as above. The presence of diabetes and smoking will be yes or no responses, and therefore recorded as nominal data. The values were put into the free online American College of Cardiology atherosclerotic CVD calculator to get the patient's score. Per the American College of Cardiology, an atherosclerotic CVD score of low risk is defined as < 5% risk of having a heart attack or stroke in the next 10 years; intermediate risk is defined as 5% – 7.4 % risk of having a heart attack or stroke in the next 10 years; and high risk is defined as > 20% risk of having a heart attack or stroke in the next 10 years (American College of Cardiology, 2019).

### **Data Analysis**

A summative evaluation was unable to be performed due to a lack of patient follow-up data. Patient's demographic data along with a formative evaluation is discussed below.

### ***Cost***

No funding or grants were received for this project. The clinic was volunteer based at the time the screening was held. The screening and all educational meetings were held at the clinic

site. Blood pressure machines, cuffs, and point of care lipid machines were owned by the clinic and were available for use free of charge. Cartridges for the point of care lipid machines were 80 dollars for a box of ten. The clinic covered this cost. Five boxes were needed, totaling 400 dollars. The cost of the motivational interviewing course, “Motivational Interviewing: The Language of Change with Dr. Stephen Rollnick,” was \$169.99 and was the responsibility of the student. Copies of patient education materials were supplied by the clinic. There were no other costs.

### **Implementation Timeline**

IRB approval was obtained by January 2022. The cardiovascular screening clinics took place on February 5<sup>th</sup> and February 12<sup>th</sup>, 2022. The first patient follow-ups were one month post screening beginning in March 2022. These follow-ups were in 1:1 in-person with the patient and project leader. The second patient follow-ups were one month following the initial in-person visits, beginning in April 2022. The third patient follow-ups were in three months, in-person beginning in June 2022 to rereview goals and rescreen as before. The data was analyzed and disseminated by July 2022.

### ***Feasibility and Sustainability***

This project can be continued in the same fashion of 1:1 patient education and motivational interviewing/coaching for intermediate and high-risk patients post CVD community screening using the John Hopkins Level of Evidence and Quality Guide. Feasibility can be determined by evidence of statistically significant change in patient’s American College of Cardiology atherosclerotic CVD risk scores. A clinically significant change is defined by a p-value of  $< 0.05$ .

### ***Ethics and Permissions***

This project proposal was submitted to the University of Louisville IRB for approval prior to implementation. The project had approval from the director of Have a Heart clinic. Participant's health information was protected in that it did not leave the clinic. Paper screening sheets were shredded by the provider after the data was entered into the clinic's electronic health record, which keeps records secure through its password encryption.

### **Results**

From the two community CVD screening days, 24 patients were identified as intermediate or high risk per their ACC-ASCVD risk scores. These 24 patients were scheduled for a one-month follow-up with the project leader. Of these 24 patients, 14 did not show-up or cancelled their follow-up appointment, leaving a sample size of ten patients. Of the ten, there were five black females, four black males, and one white male. The minimum patient age from the sample was 44 and the maximum age was 81. The mean age was 59.9. Of these ten patients, all ten came to their initial in-person follow-up post screening where the patient and the student reviewed results, received the AHA Life's Simple Seven education, and participated in the motivational interviewing intervention for goal setting. Nine patients participated in the follow-up phone call intervention. During the follow-up phone calls, goals were reviewed and reinforced. One patient denied further follow-up or intervention, two patients were unable to be reached after three attempts, and one patient preferred to follow-up with his/her primary care doctor. This left a total of seven patients remaining for the final in-person three-month follow-ups for rescreening. Zero patients presented for their three month in-person follow-ups for rescreening.

An unexpected finding was the lack of patient follow-up at three months. After the community screening, motivational interviewing with goal setting, education intervention, and

follow-up phone call, it was thought participants would want to participate in the final rescreening. An expected finding was the low sample size. From experience with previous community CVD screenings, the clinical director advised that there would be patients who would be unable to follow-up or refuse follow-up entirely.

One of the biggest barriers of the project was the project leader not having computer access at the project site. The project leader had to rely on other clinic employees or volunteers to retrieve patient information and schedule follow-ups. This was difficult for the office staff during the workday. The three main facilitators of the project were the physician director, social worker, and administrative coordinator. They helped to coordinate patients both on the screening days and in scheduling of follow-up appointments.

## **Discussion**

### **Summary**

CVD remains the number one cause of mortality in the United States (Center for Health Equity, 2014). Both the state of Kentucky and city of Louisville have rates of CVD higher than the national average (American Heart Association, 2019). Blacks and Hispanics, those with lower socioeconomic status, limited health literacy, and lower education level are medically undermanaged and undertreated. The AHA describes to combat CVD, patients with the highest cardiovascular risk must be targeted with population-level health promotion initiatives (American Heart Association, 2019). The purpose of this project was to decrease CVD risk factors in Louisville's underserved and underinsured neighborhoods. Rationale and specific aims of the project included the short-term goal of patient's meeting at least one of their personal set goals; the intermediate goal of patient's having a change in at least one cardiac biomarker; and the long-term goal of decreasing patient's ACC-ASCVD risk score.

The key finding of the study was low patient retention. Originally 24 patients were identified as immediate or high risk per their ACC-ASCVD risk score. Of these 24 patients, ten presented for their one-month follow-up appointments, nine patients participated in their follow-up phone call, and zero patients presented for their final three-month in person follow-up.

### **Interpretation**

Due to the lack of follow-up, the rationale and specific aims of the project could not be met. However, the project still had a positive impact on the patients who participated. First, as the literature demonstrates, motivational interviewing supports patients trying to reach their goals by empowering their self-care and self-maintenance (Patnode et. al, 2017). After writing their goals, all ten patients reported feeling more empowered and in control of their health. This is consistent with the project framework in the Health Promotion Model, which states people seek to regulate their own health behaviors. Furthermore, motivational interviewing is cost effective and can easily be delivered via telephone, text, or face-to-face (An & Song, 2020). This makes motivational interviewing an ideal intervention for clinics who care for underserved populations. The principles of motivational interviewing can be applied in virtually any setting, any patient population, and for anything that warrants behavior modification (An & Song, 2020).

### ***Limitations***

The project's biggest limitation was the small sample size of only ten patients. If the sample size was larger, it is possible there would have been a better probability more patients would have followed up. The second limitation was in the project design. Patients were immediately scheduled for their first in-person follow-up after the initial community CVD screening. However, patient retention may have been higher if participants were also scheduled



for their three month in-person follow-up at this time as well. Not scheduling patients for all three of their follow-up appointments up front likely also negatively impacted patient retention.

The cost of this project did not change from its original assessment. One tradeoff is although a clinically significant change amongst participant's ACC-ASCVD risk scores was unable to be determined, the motivational interviewing intervention had a positive influence on patient's reported health beliefs.

### *Feasibility*

One reason for the lack of patient follow-up may have been that patients were not scheduled for all three follow-up appointments at once. Instead, after each follow-up, the project leader called to schedule patients for future appointments. Second, patients who were eligible to participate in the project had ACC-ASCVD scores of intermediate or high risk and thus were scheduled for follow-up with the clinic physician as outlined by the AHA (American Heart Association, 2019). A possible factor for lack of follow-up with the project could be that there were too many follow-up appointments, so patients were confused, or elected not to follow-up with the project or the student, and follow-up with the physician instead. To improve retention, patients should be scheduled for all three follow-up appointments at the start of the project. Additionally, patients should be seen by the physician and by the project leader for follow-up during the same appointment, if possible.

Finally, according to the literature, motivational interviewing can successfully be carried out via telephone call or text (An & Song, 2020). However, because CVD is the single leading cause of death in the United States, therefore guidelines from the AHA state that patients at intermediate or high risk for CVD should be intensively managed by a physician (American Heart Association, 2019). The initial patient follow-ups for this project were made in person so

that participants could become patients of the clinic, with management and follow-up from the physician cardiologist. The AHA goes on to state that changing patient behaviors such as diet, exercise, and medication remains an important aspect of CVD prevention and management with programs that use theoretical models of behavior change, proven techniques, and multidisciplinary support (American Heart Association, 2019). For future studies that do not require intensive patient follow-up and monitoring, a motivational interviewing intervention could be delivered via telephone instead of in-person.

### **Conclusions**

An intervention for a free community CVD screening, patient education, and motivational interviewing for behavior change can be implemented in the underserved population of Louisville, Kentucky. Suggested next steps include addressing previously discussed limitations and feasibility concerns with the project's design. In further study, it would be important to assess the project's ability to be applied to other areas of chronic disease management.

### ***Dissemination Plan***

Results of this project were presented at the University of Louisville School of Nursing poster presentation day on August 8, 2022 and submitted to the University of Louisville's Institutional Repository. Project outcomes were shared with project stakeholders.

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**Appendix A****Letter of Support**

To whom it may concern:

Have a Heart Clinic is in full support of the Doctor of Nursing Practice (DNP) project entitled *Atherosclerotic Cardiovascular Disease Risk Reduction in the Underserved and Underinsured Population of Louisville, Kentucky* that will be completed at Have a Heart Clinic on February 5, 2022, by University of Louisville School of Nursing DNP student Emily Storms RN, BSN.

This letter is to provide permission for Emily Storms to complete her DNP project, analyze the data, and present the findings using deidentified data. I understand that the DNP project proposal will be reviewed as a quality improvement project by the University of Louisville Institutional Review Board (IRB) prior to data collection.

Sincerely,

Dr. Mike Imburgia

## Appendix B

## John Hopkins Level of Evidence and Quality Guide

Evidence Level	Quality Guides
<p><b>Level I</b> Experimental study, randomized control trial (RCT) Systematic review of RCTs, with or without meta-analysis</p>	<p><b>A: High quality:</b> Consistent, generalizable results; sufficient sample size for the study design; adequate control; definitive conclusions; consistent recommendations based on comprehensive literature review that includes thorough reference to scientific evidence</p>
<p><b>Level II</b> Quasi-experimental study Systematic review of a combination of RCTs and quasi-experimental, or quasi-experimental studies only, with or without meta-analysis</p>	<p><b>B: Good quality:</b> Reasonably consistent results; sufficient sample size for the study design; some control, fairly definitive conclusions; reasonably consistent recommendations based on fairly comprehensive literature review that includes some reference to scientific evidence</p>
<p><b>Level III</b> Non-experimental study Systematic review of a combination of RCTs, quasi-experimental and non-experimental studies, or non-experimental studies only, with or without meta-analysis Qualitative study or systematic review with or without meta-analysis</p>	<p><b>C: Low quality or major flaws:</b> Little evidence with inconsistent results; insufficient sample size for the study design; conclusions cannot be drawn</p>
<p><b>Level IV</b> Opinion of respected authorities and/or nationally recognized expert committees/ consensus panels based on scientific evidence</p> <p>Includes: Clinical practice guidelines Consensus panels</p>	<p><b>A: High quality:</b> Material officially sponsored by a professional, public, private organization, or government agency; documentation of systematic literature search strategy; consistent results with sufficient numbers of well-designed studies; criteria-based evaluation of overall scientific strength and quality of included studies and definitive conclusions; national expertise is clearly evidence; developed or revised within the last five years</p> <p><b>B: Good quality:</b> Material officially sponsored by a professional, public, private organization, or government agency; reasonably thorough and appropriate systematic literature search strategy; reasonably consistent results, sufficient numbers of well-designed studies; evaluation of strengths and limitations of included studies with fairly definitive conclusions; national expertise is clearly evidence; developed or revised within the last five years</p> <p><b>C: Low quality or major flaws:</b> Material not sponsored by an official organization or agency; undefined, poorly defined, or limited literature search strategy; no evaluation of strengths and limitations of included studies, insufficient evidence with inconsistent results, conclusions cannot be drawn; not revised within the last five years</p>
<p><b>Level V</b> Based on experimental and non-research evidence</p>	<p><b>A: High quality:</b> Clear aims and objectives; consistent results across multiple settings; formal quality improvement, financial or program evaluation methods used; definitive</p>



<p>Includes: Literature reviews Quality improvement, program, or financial evaluation Case reports Opinion of nationally recognized expert(s) based on experimental evidence</p>	<p>conclusions; consistent recommendations with thorough reference to scientific evidence <b>B: Good quality:</b> Clear aims and objectives; consistent results in a single setting; formal quality improvement or financial or program evaluation methods used; reasonably consistent recommendations with some reference to scientific evidence <b>C: Low quality or major flaws:</b> Unclear or missing aims and objectives; inconsistent results; poorly defined quality improvement, financial or program evaluation methods; recommendations cannot be made</p>
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Dang, D., & Dearholt, S. (2017). *Johns Hopkins nursing evidence-based practice: Model and guidelines*. 3<sup>rd</sup> ed. Indianapolis, IN: Sigma Theta Tau International.

[www.hopkinsmedicine.org/evidence-based-practice/ijhn\\_2017\\_ebp.html](http://www.hopkinsmedicine.org/evidence-based-practice/ijhn_2017_ebp.html)

## Appendix B

Study Purpose (copy exactly from study)	Type of Study	Sample/ Setting	Major Variables Studied and their Definitions	Data Analysis and Findings	Grade	Appraisal: Strength of Evidence and Worth to Practice
The purpose of this study was to test the efficacy of a tailored motivational interviewing (MI) intervention versus usual care for improving HF self-care behaviors, physical HF symptoms and quality of life.	Prospective, single-blinded, single-center, randomized controlled trial	67 participants were enrolled in the hospital. Immediately after discharge, those in the intervention group received a single home visit and 3–4 follow-up phone calls by a nurse over 90 days.	HFSPS HF symptoms: 0-90 Ordinal  SCHFI self-care tool: 0-100 Ordinal  KCCQ 0-100 Ordinal	SCHFI: There was overall improvement in self-care maintenance in both groups over 90 days - Multiple linear regression, Cohens d  KCCQ: The difference in quality of life between groups was not significantly different between the groups ( $p = 0.36$ ) Students t-test  HFSPS: no differences between groups ( $p = 0.63$ ) Students t-test	CASP - RCT 10 out of 11	Melnik - Level 2 evidence  Motivating people with HF to take more control over their health using MI can help them achieve improved self-care.  MI is nurse led, and is both patient and cost effective, and could potentially be applied to other chronic conditions.  Nurses assisted the client in making their centered goals and used these goals during the phone calls as motivation for the client, instead of utilizing something generic (ie, attend my grandson's football games).

Citation: Masterson Creber, R., Patey, M., Lee, C. S., Kuan, A., Jurgens, C., & Riegel, B. (2016). Motivational interviewing to improve self-care for patients with chronic heart failure: MITI-HF randomized controlled trial. *Patient education and counseling*, 99(2), 256–264. <https://doi-org.echo.louisville.edu/10.1016/j.pec.2015.08.031>

Study Purpose (copy exactly from study)	Type of Study	Sample/ Setting	Major Variables Studied and their Definitions	Data Analysis and Findings	Grade	Appraisal: Strength of Evidence and Worth to Practice
The purpose of this study was to evaluate a culturally relevant cardiovascular health promotion intervention that could potentially reduce cardiovascular disease risk among a group of rural African American adults by improving intentions, attitudes, norms, and self-efficacy to increase produce consumption, reduce dietary saturated fat intake, and increase exercise.	Cluster randomized controlled trial	12 churches in northern Florida  115 participants in the control group and 114 in the intervention group	Intentions Nominal  Attitudes Nominal  Norms Nominal  Self-efficacy Nominal	The intervention group demonstrated significantly greater improvements on 10 of the 12 variables measured compared with the control group. - 95% CI  The pretest and posttest outcomes were analyzed using repeated-measures linear mixed model.  Significantly greater intentions to increase produce consumption and reduce dietary fat intake.  There was no significant difference for the intervention group from pretest to posttest regarding intentions to increase exercise.	CASP - RCT 10 out of 11	Melnik - Level 2 evidence  <b>Health promotion interventions are needed, particularly in rural community settings, to reduce health disparities among populations at risk for poor cardiovascular health outcomes</b>  Participation in the intervention increased self-efficacy in regard to produce consumption, reducing dietary saturated fat intake, and increasing exercise.  Nurse-led health promotion programs in community settings can potentially reduce CVD risk and advance health equity  <b>Study replication is possible for other minority populations and would likely produced similar results.</b>

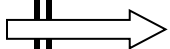
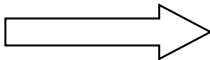
Citation: Abbott, L., Williams, C., Slate, E., & Gropper, S. (2018). Promoting Heart Health Among Rural African Americans. *The Journal of cardiovascular nursing*, 33(1), E8–E14. <https://doi-org.echo.louisville.edu/10.1097/JCN.0000000000000410>

Study Purpose (copy exactly from study)	Type of Study	Sample/ Setting	Major Variables Studied and their Definitions	Data Analysis and Findings	Grade	Appraisal: Strength of Evidence and Worth to Practice
The aim of this study was to access the effect of a 6-month community-based intervention on CHD risk in individuals at high risk.	Prospective, quasi experimental study	Hengyang, China  102 participants, aged 30-79	SBP Nominal  Depression 0-100 Ordinal  Clinical cardiometrics: glucose, lipid, BMI Nominal  HRQoL 0-100 Ordinal	The SBP of participants in the intervention group decreased by 5 mmHg ( $p < .001$ )  Cardiometrics: Participants in the intervention group had a significant reduction in glucose ( $t = -2.49, p = .015$ ), cholesterol ( $t = -2.44, p = .017$ ), and BMI ( $t = -2.58, p = .011$ ) T-test, x2 statistics  Depression Participants in the intervention group had a significant improvement in depression scores from baseline to post intervention ( $t = -2.05, p = .043$ ) T-test, x2 statistics  HRQoL Participants in the intervention group had a significant improvement in total HRQoL scores from baseline to postintervention ( $t = 3.36, p = .001$ ) T-test, x2 statistics	CASP – quasi experimental  9/11	Melnik level 3  A nurse-led community-based education and coaching intervention reduces glucose, cholesterol, and BMI for participants in the intervention group, and these reductions have a positive effect on CHD prevention.  Group education is effective in enhancing awareness and promoting healthy lifestyle behaviors to lower disease-related risk factors and to improve self-management capabilities.  Future studies should consider an interdisciplinary approach, with physician, pharmacist and psychologist input for weight loss and smoking cessation.

Citation: Huang, Y.-J., Parry, M., Zeng, Y., Luo, Y., Yang, J., & He, G.-P. (2017). Examination of a Nurse-led Community-based Education and Coaching Intervention for Coronary Heart Disease High-risk Individuals in China. *Asian Nursing Research*, 11(3), 187–193. <https://doi-org.echo.louisville.edu/10.1016/j.anr.2017.07.004>

Appendix C

Logic Model

INPUTS	 <b>OUTPUTS</b>		 <b>OUTCOMES/IMPACT</b>		
<p>Staff at Have a Heart</p> <p>-Volunteers</p> <p>-Time</p> <p>-Research</p> <p>Reference material and handouts:</p> <p>-Free for use from the AHA</p> <p>-Cost of paper to print – unknown at this time how many pages or copies needed</p>	<p><b>Activities</b></p>	<p><b>Participants</b></p>	<p><b>Short-term</b></p>	<p><b>Intermittent</b></p>	<p><b>Long-term</b></p>
	<p><u>What</u></p> <p>Free community health screening for 10-year ASCVD risk. Group education for all, then 1:1 motivational interviewing and coaching utilizing Life’s Simple 7 for intermediate and high-risk patients.</p>	<p><u>Who</u></p> <p>Patients</p> <p>Families</p> <p>Providers: MDs, APRNs, RNs, Have a Heart Staff, Interdisciplinary providers: pharmacist, med school students.</p>	<p>At 3 months post program, patients will have achieved at least one of their two personal set goals.</p>	<p>At 6 months post program, there will be a change in at least one biomarker.</p>	<p>In one year to decrease the patient’s overall atherosclerotic cardiovascular disease risk through reduction of modifiable risk factors.</p>
	<p><b>EVALUATE</b></p>			<p><b>Assumptions</b></p> <p>IRB approval, patients will attend/have interest in the program, staff will volunteer to help</p>	<p><b>External Factors</b></p> <p>Space to gather for seminar, need for virtual learning, safety of downtown</p>

Appendix D



Certificate of Successful Completion



**Certificate of Successful Completion**

**Motivational Interviewing: The Language of Change with Dr. Stephen Rollnick**

**Speaker(s):** Stephen Rollnick, PhD, Author/Consultant

**Original Program Date:** Dec 05, 2013

**Delivery Method:** Digital Seminar

**Participant Name:** Emily Shutt

License Number: \_\_\_\_\_

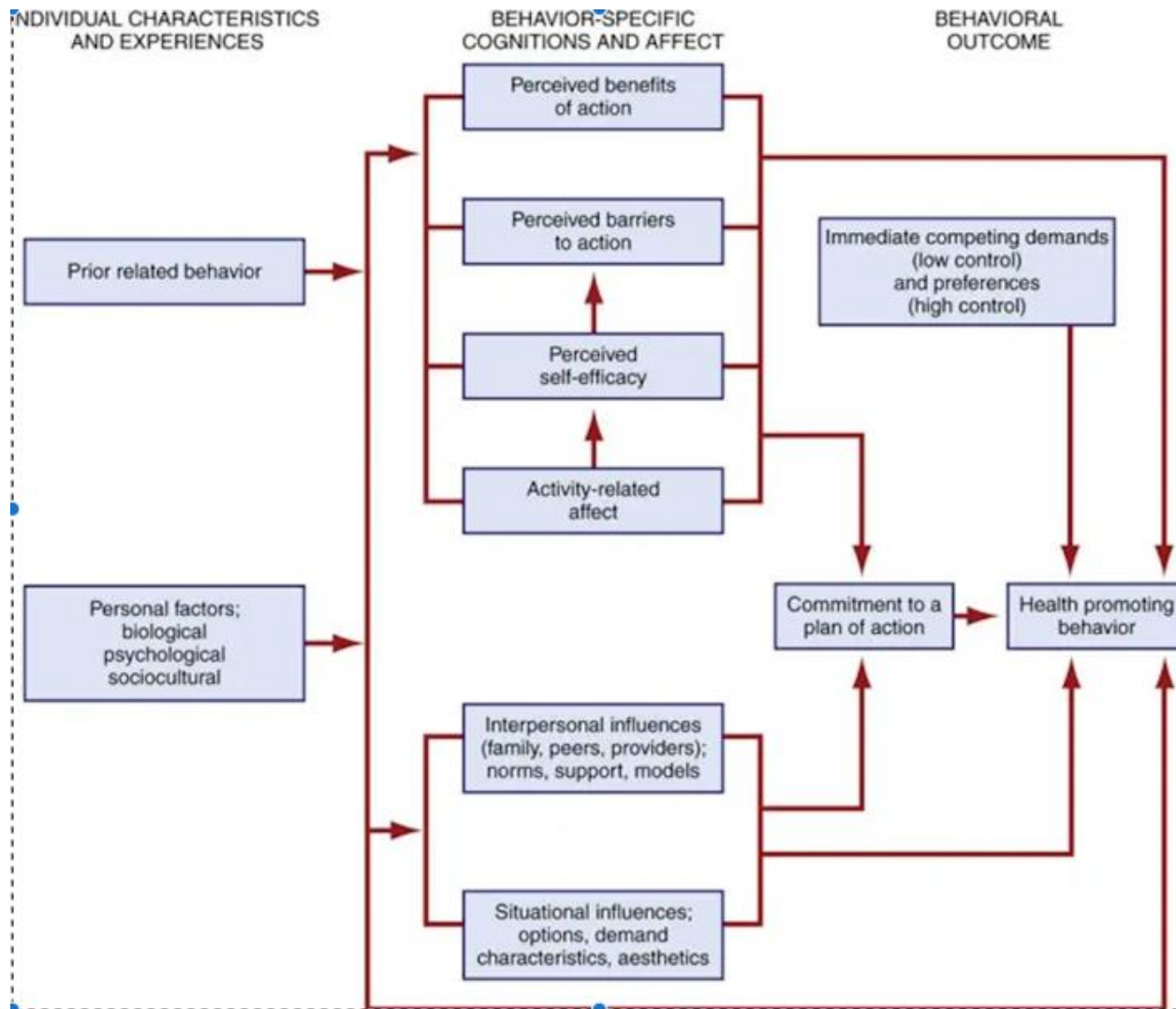
**Test Completed:** Jun 28, 2022 08:26AM CST

**Participant has completed the above-referenced educational activity in its entirety or as indicated below.**

This certificate provides sponsor verification of individual attendance and may be used for your records or for any licensing not listed below. We maintain attendance records for 7 years.

CE Information is based on 100% attendance.

Appendix E



Petiprin, A. P. (2020, July 21). *Pender's Health Promotion Model*. Nursing Theory. Retrieved October 2, 2021, from <https://nursing-theory.org/theories-and-models/pender-health-promotion-model.php>

## Appendix F

### Standardized Motivational Interview

- A) Discussion of individualized screening results with health implications
  - a. Blood pressure
  - b. Heart rate
  - c. Lipid panel
  - d. Presence of diabetes
  - e. Smoking
  - f. Weight
  - g. ACC-ASCVD risk score
- B) Explanation of AHA's Life's Simple Seven
- C) Writing of two to three health related goals per patient
- D) Barriers and facilitators
  - a. What will be the hardest factor or factors in achieving your goals?
  - b. Who or what will help you achieve your goals?
- E) Recommendation strategies



**Appendix G**

**Prisma Diagram**

