Evaluation of Participation, Completion, and Barriers in Cardiac Rehabilitation: A Retrospective Data Analysis

Marijah Harney-Tolo
Department of Nursing, DNP-FNP
The College of St. Scholastica

Problem and Significance

- Cardiac Rehabilitation (CR) is a program in which patients often participate after having a referral after a cardiac related illness. CR has proven to increase positive outcomes such as decrease incidence of depression, reduce unplanned hospitalization, reduce cardiovascular risk, the subsequent reduction in mortality rates, and increase functional capacity and quality of life (Servey & Stephens, 2016).
- Barriers to CR such as distance, availability of healthcare, and transportation have been linked to nonparticipation and subsequently negative patient outcomes.
- One way to increase access to CR is by creating availability for telehealth (Rural Health Information Hub, 2019b).
- Research has indicated that incorporating home-based CR programs increased patient participation from 6 % to 24.6 %, increase the number of completed sessions to greater than three sessions from 5.1% to 16.6 %, and home-based CR participants were found less likely to drop out of the program than CR participants who attended on-site sessions (ACC, 2018).

Literature Review

- Literature was gathered and reviewed to determine the need for, current barriers, and the current outcomes of tele-CR programs.
- Telehealth is an up-and-coming means of affordable healthcare while simultaneously improving the availability of services to patients in underserved areas.
- Home-based CR programs have the ability to be successful on their own or in correlation with a facility-based program (Rohrbach et al., 2017).
- tele-CR programs have the ability to increase completion rates, decrease unnecessary hospitalizations, and increase patient satisfaction and compliance (Kaiser Permanente, 2019).

Guiding Frameworks

- The Fogg Behavior Model: for a goal behavior to occur, the patient must have the motivation, ability, and a trigger and that all three aspects must be present at the same time (Sankaran et al., 2015).
- The Health Belief Model: addresses reasons for nonattendance among CR participants (Horwood et al., 2015).

Logic Model

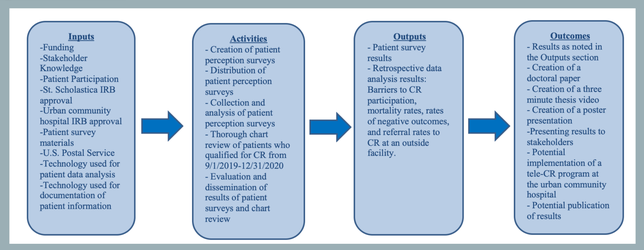

Figure 1. Depicts the logic model associated with this project

Project Specific Goals

- This project consisted of the evaluation of a retrospective data analysis to assess barriers to CR participation for patients at an urban community hospital with a referral for a CR program.
- This project also investigated patient outcomes of those who participated in CR, those who do not participate in CR, and those who terminated the program early by as assessing mortality, cardiac related rehospitalizations, and further cardiac diagnostic stress testing for the selected patients.
- Rates of patient referrals to outside CR facilities were also performed and further assessed for ability to patient evaluate progress at those facilities.
- In addition, a patient perception survey surrounding acceptance of tele-CR was collected at the urban community hospital to assess viewpoints of its patients.

Gap Analysis

Current State	Desired State	Identified Gap	Gap due to Knowledge, Skill, and/or Practice	Methods Used to Identify Professional Practice Gap
Patients encounter barriers to participation in CR. Barriers to CR participation contribute to nonparticipation, which increases the risk of negative patient health outcomes.	Barriers to participating in CR at the urban community hospital are identified and addressed in order to promote CR participation in all patients who qualify for the rehabilitation service. Increasing patient participating in CR subsequently reducing the rates of negative health outcomes.	The use of telehealth in reducing barriers to CR participation, and subsequently reducing negative health outcomes associated with nonparticipation.	Practice: The implementation of a telehealth system has begun, but does not allow for a fully remote tele-CR program. Knowledge: It is currently unknown what the most commonly occurring barriers are within the hospital's patient population who qualifies for CR.	Staff interview, evaluation of research, and performing retrospective data analysis of patients at the urban community hospital to assess for barriers to CR participation, and negative health outcomes.
Patients are frequently being referred to CR facilities that are closer to their residence, which reduces the urban community hospital's ability for close follow up and continuity of care.	Reduced referral rates to outside CR facilities. Patients remain able to participate in CR within the urban community hospital system, thus promoting continuity of care and financial benefit.	The use of telehealth to allow for the urban community hospital staff to provide patient care within the hospitals CR program.	Practice: The implementation of a fully remote telehealth system has the potential to allow for the urban community hospital's staff to closely follow each of the patients within the CR program regardless of their location.	Staff interview and performing a retrospective data analysis of patients who qualify for CR to further assess for referral rates to outside CR facilities and the ability to determine the patient's rate of participation or completion of the CR program.

Figure 2. The table displays the Gap Analysis that was performed during this project.

Total Study Population	Rural/Urban Cluster	Urban	Total (Rural/Urban Cluster + Urban)
Barrier Priority 1	Want/able to exercise at home (32 patients)	Covid-related concerns (21 patients)	Want/able to exercise at home (51 patients)
Barrier Priority 2	Covid-related concerns (25 patients)	Interference with schedule (20 patients)	Covid-related concerns (46 patients)
Barrier Priority 3	Health limitations (20 patients)	Want/able to exercise at home (19 patients)	Health limitations (36 patients)

Figure 3. A total study population of 551 patients were divided into an urban or rural/urban cluster group. Identification of nonparticipation and noncompletion of CR was identified for patients and barriers were then placed into one of seven categories. This figure shows the top three most prioritized barriers in each group, as well as for the total cohort.

Measures and Results

- The most common barriers to patient CR participation were: "want/able to exercise at home." "Covid-related concerns," "health limitations," and "interference with schedule." As seen in Figure 1.
- A correlation was found between CR nonparticipation and noncompletion with increased rates of negative patient outcomes and mortality rates.
- Almost 45% of CR participants who received a referral from the urban community hospital were referred to another CR facility to participate. It was also found that approximately 76% of the patients who attended CR at other facilities were not able to be evaluated for participation or completion due to noncommunicating electronic health records.
- Additionally, despite a low distribution and return rate, the patient surveys showed an interest in tele-CR from the urban community hospital's patients.

	Patients who completed CR for the total cohort	Patients who did not complete CR for the total cohort	Patients with unknown CR completion for the total cohort	Total patient Cohort
Patients who have experienced at least one negative outcome	24	88	49	161
Patients who have not experienced any negative outcomes	91	154	145	390
Total patients within the group	115	242	194	551
Rate of negative outcomes	20.90%	36.40%	25.30%	29.20%
Patients who have passed away regardless of cause	2	39	49	54
Rate of mortality	1.70%	16.10%	6.70%	9.80%

Figure 4. Patients were evaluated for their participation, nonparticipation, or noncompletion of CR. Results showed that there was a correlation between nonparticipation or noncompletion of CR with increased negative health outcomes and increased rates of all-cause mortality.

Impact on Practice

- The results of the study can be used as support for the encouragement of a tele-CR program at the urban community hospital.
- A tele-CR program could help to alleviate the urban community hospital's patient barriers, decrease negative health outcomes, and promote patient retention and continuity of care.

Project Sustainability

- Results can be given to the urban community hospital for further evaluation.
- The results can be used on a national level to advocate for continued Medicare and Medicaid coverage of telehealth through 2022, for continued implementation of high-speed internet for patients in underserved communities, and to advocate for the national implementation of inter-communicating health record systems to promote continuity of care.