

IMPACT OF A MEDICAL TEAM PROGRAM ON PATIENT EXPERIENCE IN
CARDIOLOGY- FEASIBILITY STUDY

By

Zachary Force

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Director of Dissertation: Samuel Sears, Ph.D.

Major Department: Psychology

ABSTRACT

Background. Patient-centered care (PCC) is a proposed style of healthcare that succinctly explores aspects of the biopsychosocial model by allowing the opportunity for patients to actively engage in their medical visit, forming a patient-provider relationship (PPR). Research confirmed the importance of the PPR but has not identified consistent means of improving this relationship. Provider self-disclosure (PSD) has varied efficacy on the PPR, depending on clinic setting with patients expressing greater benefit from PSD in the specialty setting of surgery as compared to a primary care setting. Harnessing provider biographies to convey information that patients want to know may be a strategy to standardize and elucidate effective practices of PPR in pursuit of the goals and benefits of PCC. It also remains to be seen whether biographies can provide a quick and simple way to heed the call of directives issued by the American College of Cardiology (2012) and improve PPR and PCC. **Purpose.** The purpose of the study was to examine the effect of provider biographical information on the perceptions of patient-centered care and the patient-provider relationship in a cardiology practice setting. **Methods.** The sample included 200 patients who attended their regularly scheduled medical appointment at a cardiology practice. Participants were randomized to receive either a biography about their

provider (intervention) or about the medical institution (control). The mean age was 62.74 ($SD = 14.04$) and the mean Charlson Comorbidity Index was 3.87 ($SD = 2.33$). Demographics for the sample included individuals who identified as Black ($N = 95, 47.5\%$), White ($N = 89, 44.9\%$), Hispanic or Latino/a ($N = 5, 2.5\%$), Asian ($N = 1, 0.5\%$), middle Eastern ($N = 2, 1\%$), and multiple racial ($N = 3, 1.5\%$). **Results.** Acceptability of reading a one-page biography was high, with patients from both groups having read the biography. Patients who read biographical information about their providers perceived their providers as engaging in higher levels of patient-centered care behavior ($M = 74.54, SD = 11.34; t(195) = 23.05, p = .003$) as compared to the control ($M = 69.83, SD = 15.28$), having higher levels of relationship depth with their providers ($M = 26.72, SD = 6.57; t(196) = 2.461, p = .015$.) as compared to the control ($M = 23.75, SD = 15.28$), and were more likely to ask a question during their consult ($X^2(1, N = 198) = 6.58, p = 0.01$). Qualitative information was collected on what patients would like to know about their providers. **Conclusion.** Presenting patients with provider biographical information significantly improved perceptions of their provider's patient-centered care behavior, perceptions of the provider-patient relationship, and were more engaged in their medical visit. This study offers a viable and low-cost method of improving patient-centered care with minimal provider burden that can be implemented at any clinic.

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Zachary Force, M.A.

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Director of Dissertation: Samuel Sears, Ph.D. ABPP

Dissertation Committee Members:

Jennifer L. Bowler, Ph.D.

Robert A. Carels, Ph.D. ABPP, MBA

Brandon Kyle, Ph.D.

Rajasekhar Nekkanti, M.D.

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LIST OF SYMBOLS OR ABBREVIATIONS

α	Alpha, this is the letter before β	21
X^2	chi-square	26
ECHI	East Carolina Heart Institute	19
EC	Effective Communication	21
E	Empathy	21
IPA	Interest in Patient’s Agenda	21
M	Mean	21
N	Number	24
PIC	Patient Involvement in Care.....	21
PCC	Patient Centered Care	2
PDDR	Patient-Doctor Depth of Relationship Tool	7
PPR	Patient Provider Relationship	6
PSD	Physician self-disclosure.....	11
\pm	Plus or Minus	25
p	Probability.....	26
PPRQ	Provider-Patient Relationship Questionnaire.....	20
SD	Standard Deviation.....	21

Chapter I: Introduction

Background and Theory

Historically, the biomedical model proposes that medical outcomes are the direct result of biological causes in terms of etiology, prognosis, and course. However, within the past 50 years, appropriately seeking medical treatment and maintaining health has been formulated to be more complex in nature. The biopsychosocial model was first conceptualized in 1977 and proposed that medical outcomes can be influenced by biological, psychological, and social factors (Engel, 1977). Research into psychosocial aspects of healthcare experiences draws on the work from the field of psychology, and corresponding research can inform better practices in healthcare to benefit patient health. Notably, Bandura's (1978) work on social learning theory posited that the formation of psychological functioning was the continuous and reciprocal interplay between behavioral, cognitive, and environmental factors. Applied to a medical setting, patient attitudes can influence their environment, while the environment simultaneously influences patient attitudes. While health care providers are the health experts within the relationship, they are still prone to influence from their patients, and various factors that affect their care of the patient. The biopsychosocial model argues that the provider should consider various patient factors, rather than simply biological factors, and social learning theory posits that the provider themselves may be a social influence on the patient's health. This warrants further exploration of how providers can better understand their patients and how the relationship between patient and providers can develop from the provider side of the dyad. This shift from the medical model towards a more holistic conceptualization of patient medical ailments broadened the view of what influences patients' health and highlighted the need for increased understanding of how providers can recognize and address these unique considerations. The desire to put patients first in care has led

to changes and innovations in healthcare and may continue to uncover ways that interactions and providers can be optimized in pursuit of these goals.

Patient Centered Care

Definition and Conceptualization. The inclusion of the patient perspective into medicine has begun to shift the field from physician or disease-centered care towards patient centered care (PCC; Laine & Davidoff, 1996). PCC refers to a method of healthcare delivery that values the whole person and recognizes the patient's values, needs and preferences (Mead & Bower, 2000). For example, PCC encourages providers to consider how a patient's environment may be impacting their ability to take care of themselves. PCC has unique value to patients who are faced with ambiguity in diagnosis or treatment and can help remind a provider to recognize when a patient may need education or reassurance. Accordingly, Mead and Bower (2000) identified five conceptual dimensions of PCC including framing from a biopsychosocial perspective, humanizing patients, developing a therapeutic alliance, humanizing providers, and distributing equitable power and responsibility for decision-making. Thus, PCC places more emphasis on educating patients and providing emotional support to empower them to make informed decisions in their care (Epstein & Street, 2011). Increased attention on the patient experience in healthcare (and other related patient reported outcomes) has been proposed to include an array of benefits within the medical encounter such as optimization of biological, psychological, and social outcomes for patients. However, the field is still in the process of reliably engaging in the best and most efficient, cost-effective ways to improve PCC.

PCC in Research. A systematic review of PCC by Rathert and colleagues (2012) revealed substantial evidence of PCC's influence on improving patient satisfaction with healthcare, overall well-being, and self-management strategies for their disease state. Specific

studies found relationships between PCC and clinical outcomes including decreased chest pain, decreased unexpected deaths, and improved hospital discharge outcomes (including decreased complications and lower mortality one year after discharge; Rathert et al., 2012). It should be noted that some studies did suggest that PCC had no impact on constructs such as medical compliance, pain severity, body mass index, falls, post operative infections, or complications (Rathert et al., 2012). However, many of these studies used a nonrandomized design.

Randomized clinical trials across different treatment settings are needed to better understand the nuance of PCC on medical outcomes, as design inconsistency may account for some of the variability in findings. Nevertheless, a more recent review of 28 systematic reviews found that PCC was associated with a variety of beneficial outcomes across patients, their family members, and providers (Park et al., 2018). For patients, PCC improved quality of life, knowledge, self-care skills, satisfaction, physical health, psychological health (stress, depression, anxiety, confidence, well-being, illness perception and burden), and skills to manage their health (Park et al., 2018). For health care facilities, PCC was associated with reduced health care utilization, admissions, and length of hospital stay. For family members of patients, PCC interventions improved knowledge, confidence, care skills, satisfaction with nursing staff and family functioning, as well as reduced psychological distress such as depression, stress, and anxiety. Finally, PCC interventions that examined healthcare providers demonstrated improvements in cultural sensitivity, job satisfaction, reduced burnout, and improved quality of care (Park et al., 2018).

Thus, a large quantity of research does suggest that PCC has a variety of benefits at several levels (for providers, patients, and even facilities), further supporting the need for increased research on the most parsimonious way to deliver PCC in medical environments.

Research may also need to explore medical specialties, as PCC has typically been studied within primary care and family medicine clinics, but other specialties have begun to adopt these practices in healthcare delivery.

PCC in Cardiology. Cardiology is a specialty that may benefit from increased PCC, but very little research has been focused on this. Cardiology appointments can be anxiety-provoking for patients: the stimulus value of providers has been shown to affect blood pressure readings in patients being treated for hypertension (Myers, 1996). The need for increased PCC within cardiology is also emphasized by caring for an increasingly aging population (Mozaffarian et al., 2016), who often experience multiple comorbidities (Dunlay & Chamberlain, 2016). Comorbidities complicate medical care, and the increased complexity of cases often requires the need for more PCC and interdisciplinary care. Also, cardiac patients are diagnosed with chronic health conditions which require patients to understand their health condition, be informed of treatment options, and manage symptoms of their illness (Kane et al., 2015). PCC includes effective communication about their illness and treatment options with shared decision making. The more complicated and complex a condition becomes, the more important it may be to remain patient-centered to achieve broad health outcomes preferred by patients. Further, health literacy is a barrier to care for one-third of Americans (Walsh et al., 2012) and can further exacerbate difficulties with complex care in cardiology. PCC may help to address issues with health literacy among cardiac patients.

Consequently, in a 2012 Health Policy Statement, the American College of Cardiology highlighted the need for PCC within cardiology, highlighting bidirectional communication between providers and patients, shared decision making, and collaborative goal setting (Walsh, et al., 2012). Thus, it is unsurprising that research has explored exactly how PCC could benefit

cardiac conditions; PCC was associated with increased medication adherence for patients with hypertension (Roumie et al., 2010) and higher rates of treatment satisfaction and better adherence, especially in patients managing chronic illness (Hudon et al., 2012), though these studies took place in a primary care setting.

The research that has been conducted within the field of cardiology has supported a need for PCC. A systematic review examining PCC in patients with chronic heart failure showed that PCC reduced symptom burden, improved quality of life, and increased patient engagement in medical visits (Kane, et al., 2015). Then, PCC, through shared decision making, has been associated with positive affective and cognitive outcomes among patients, and some research has identified a connection between shared decision making and patient health, as well as medication management (Shay & Lafata, 2014). A randomized clinical trial examining heart failure patients found that PCC, through use of treatment collaboration between patient and provider, was associated with improvements through reduced mortality and greater improvement in depressive symptoms compared to usual care (Bekelman et al., 2015). However, this analysis did not find improvements in health-related quality of life. It is understandable that there is a limit to the benefit of PCC, as it may not directly improve a patient's health quality of life, but a clear benefit was demonstrated through the important outcome of reduced mortality and decreased psychopathology. Research aimed at quality improvement in healthcare delivery for PCC has been examined within cardiology, however, patient-reported outcomes such as interpersonal interactions and relationships are understudied in the literature (Alguren et al., 2021). In summation, research is beginning to emerge on PCC in cardiology and the plausible benefits can be posited, though continued research is needed.

Implementing PCC

Although the field of cardiology recognizes the importance of PCC on patient and clinical outcomes, cardiology fellows often receive limited training on the concept (Levinson et al., 2010). The disconnect between policy and practice exists for several reasons, including several barriers towards receiving training during fellowship. One barrier is the inconsistency in how PCC is taught and evaluated (Goldfarb, 2017). Second, implementing PCC can be impeded by time constraints such as financial and productivity demands, local culture, resistance towards change, and physical environment (Philibert et al., 2011). These researchers suggested strategies to improve PCC including familiarizing patients with individuals on their care team via a photo board and reducing medical jargon during communication. Incorporating PCC into care is also a more recent goal and current trainees may not have access to faculty who model this approach. Based on this, practical and clear strategies are needed to assist providers with implementing PCC that can be used across multiple disciplines. One simple way to practice PCC may be to improve the relationship with a patient, as this relationship may be an important component of PCC.

Provider Patient Relationship

The patient and provider, as well as the relationship between the two parties, may be an important consideration to optimize patient medical outcomes, especially as providers adapt to a more PCC approach. A provider's pattern of communication has been associated with greater patient engagement within the medical encounter (Cegala, 2011), suggesting that provider patient relationship (PPR) may be an important mechanism for practicing PCC and improving patient outcomes.

Definition and Conceptualization. The father of medicine, Hippocrates, was believed to have said "It's more important to know what sort of person a disease has, than to know what sort

of disease a person has,” seemingly encouraging providers to understand and know their patients as people. Thus, since inception, the patient-provider relationship (PPR) has long been a point of importance to medicine. Research is finally beginning to focus on how to effectively establish and use this relationship.

PPR has been defined broadly as how well patients and providers work together to improve health. Eveleigh and colleagues (2012) examined 19 measures assessing relationship quality between provider and patients, but the researchers did not find consistency in the use of these terms, especially in a primary care setting. The researchers identified commonalities across definitions including relational elements, such as trust, empathy, relational communication, and working alliance (Eveleigh et al., 2012). The working alliance, characterized as an agreement between the patient and provider on the goals of treatment and the relation between medical advice and accomplishing patient goals (e.g., exercising to improve cardiac functioning), may be an important outcome to assess PPR due to direct implications for health (Fuetes, Reyes & Osborne, 2017). In fact, the term is used interchangeably with PPR by some researchers (Eigeland et al., 2022).

Then, from the patient perspective, PPR is defined as the provider’s knowledge of the patient, trust in provider’s abilities, feelings of loyalty, and regard for provider (Ridd et al., 2009). As the field moves to formulate an overall more cohesive concept of PPR, questionnaires have been formulated to capture this construct. Recently, a review examined 14 unique questionnaires and identified three questionnaires that were psychometrically sound, freely available, and most suitable for a primary care setting in assessment of PPR (Ball et al., 2018). The three measures included the Care Continuity Across Levels of Care Scale (CCAENA), the Nijmegen Continuity Questionnaire, and the Patient-Doctor Depth of Relationship Tool (PDDR).

Upon closer inspection of these measures, the PDDR was considered the most feasible in terms of patient burden (8 items) and most relevant to PPR with all questions assessing the PPR. Further, the PDDR has extensive pilot testing, making it suitable for use. Although the other two measures have strong psychometric properties, the feasibility of the Care Continuity Across Levels of Care Scale and Nijmegen Continuity questionnaire are limited due to higher patient burden, with 73 items and 29 items, respectively. Additionally, these scales are not specific to PPR with only 30% of items on the Care Continuity Across Levels of Care Scale and 28% of items on the Nijmegen Continuity questionnaire assessing relationship dynamics. Thus, rather than assessing PR through multiple measures (empathy, relational communication, etc.) the PDDR is a succinct measure of PPR (working alliance) as PPR already begets these constructs and the scale measures multiple aspects of the patient relationship.

The Importance of Studying PPR. Despite the elusive nature of the perfect definition, PPR has important implications across a variety of domains, ranging from patient perceptions of their provider, patient perceptions of their own health, satisfaction with their care, and actual medical endpoints, including medication adherence (Fuertes et al., 2017). In terms of actual medical outcomes, PPR and the working alliance has been assessed and produced improvement in chronic disease states including renal disease, diabetes, HIV/AIDS, and chemical dependence (Fuertes et al., 2017). In addition, there is evidence suggesting that improving therapeutic alliance may positively impact glycemic control in type 1 diabetes (Attale et al., 2010). Unsurprisingly, PPR is particularly important within chronic disease states that require providers and patients to work alongside one another over extended periods of time. These unique considerations highlight the importance of improving the relationship between providers and

patients as it is part of the context of the medical visit that can shape patient perceptions on clinically relevant outcomes.

In terms of patient perceptions, PPR has been found to be positively correlated with patient adherence and satisfaction (Fuertes et al., 2017). Individuals with high perceptions of the PPR expressed more confidence in their health and exhibited more information seeking behaviors when compared to low PPR beneficiaries (Mattingly et al., 2017). Interestingly, although a study found that patients valued their provider's experience with medical interventions related to their care, they considered their doctor's bedside manner *far more* impactful when evaluating effectiveness of provider care (McCarthy, 2014). Further, 59% of patients in the study listed PPR as the most important factor in their assessing the quality of their doctor. The highly similar construct of working alliance is also associated with perceived utility, benefit, and adherence to treatment (Fuertes et al., 2017). Conversely, problematic relationships between patient and provider, such as perception that their doctor was uncaring or lacking collaboration, were cited as the most common reasons that patients sued their provider (Beckman et al., 1994). This illustrates the increasing demand on providers to not only be effective at managing complex disease states, but to also develop the relationship and communication between patients and providers. In consideration of this, the relationship patients cultivate with their provider has become a key metric in how the quality of a provider is assessed by the patient and remains of high importance to affecting quality medical care.

Factors that Contribute to PPR. As previously mentioned, PPR is typically considered a dyadic relationship, and the strength and depth of this relationship is influenced by factors related to the patient, the provider, and the medical organization. In line with this, Street (2003) proposed an ecological model to describe communication in medical encounters. The model

proposes that predisposing influences (i.e., an individual's communication style) and cognitive–affective influences (i.e., situational influences unique to this specific medical encounter) can affect the interpersonal communication between the patient and provider. Cegala (2011) found predisposing influences included: older age and experiences of pain and physical limitations. Social determinants, such as higher levels of education and income, were also associated with higher levels of confidence and information seeking behaviors in patients to providers (Mattingly et al., 2017). Cegala (2011) also proposed factors related to the organization, including a negative relationship between patient participation and increased wait times and positive relationship between appointment length and patient participation.

In terms of cognitive–affective factors, Cegala (2011) found patients' desire for information and involvement were positively associated with engagement. Social determinants of health or predisposing influences may be more difficult to target when improving PPR, but more data has been collected on specific and modifiable behaviors that providers can engage in that promote a relationship, such as cognitive–affective or social factors. Chronic disease patients identified behaviors related to positive physician-patient interactions including valuing the whole person, future planning, collaboration, empowerment, validation/emotional support, politeness/courtesy, and professionalism (Eigeland et al., 2022). Many of these factors suggest an empathic approach to incorporate these characteristics reliably. In fact, patient perception of empathy directly and indirectly influences PPR through patient trust in physician's benevolence (Wu et al., 2022). Thus, while some factors that influence PPR may be more complex or more difficult to intervene on, simple ways to improve PPR may exist such as expressing empathy and respect and using strategies for effective communication, (Kelley et al., 2014; Street et al., 2013; Wu et al., 2022,), optimizing patient involvement in care (Elwyn, et al., 2012), and expressing

interest in patients' concerns or agenda (Gobat et al., 2015). More information is needed on how to best incorporate and implement these constructs into standard care (Mead & Bower, 2000).

Physician Self-Disclosure

Physician self-disclosure (PSD) may be a means toward a direct, efficient, and cost-effective intervention for improving PPR. Yet, PSD has been understudied in recent decades: one systematic review revealed just seven studies, many of which were in pediatric settings (Arroll & Allen, 2015). The authors found that while providers frequently engage in self-disclosure during consultations (with approximately 14-75% reporting using self-disclosure; Beach, Roter, Rubin, et al., 2004; McDaniel et al., 2007), most patients (85%) reported that they did not find the disclosure helpful (McDaniel et al., 2007). Research examining patients during their first visit in a primary care setting found that one-third of physicians engaged in PSD – however, there was no effect on outcomes (McDaniel et al., 2007). This initial research was not encouraging about the value of PSD, at least without training or research to guide its practice. It is quite possible that providers were disclosing information that the patients did not find relevant or helpful.

In fact, PSD may be helpful when used intentionally and focused on improving the patient experience (Arroll & Allen, 2015), suggesting that PSD may indeed be a simple way to implement PCC. However, providers seldom receive training on self-disclosure, even though it is outlined as an important component of PCC. Further, providers may recognize the utility and benefit of PSD, but noted that specific training would be helpful (Allen & Arroll, 2015). In fact, providers may report feeling hesitant to use PSD, especially in terms of “vulnerable” statements (Malterud & Hollnagel, 2005). Perhaps PSD could be optimized by better understanding what patients want providers to disclose. Qualitative analysis has revealed common themes of PSD including reassurance, counseling, rapport building, casual, intimate, and extended narratives

(Beach, Roter, Larson, et al., 2004). However, some of these strategies may be more helpful than others. For example, Beach, Roter, Larson, et al. (2004) suggested that intimate disclosures or extended narratives could be seen as more of a boundary violation. Empathy may be more effective than reassurance in improving medical outcomes for patients – in fact, reassurance was found to have no effect on outcomes (Wasserman et al., 1984). This is especially noteworthy as providers utilize reassurance most commonly (Beach, Roter, Larson, et al. 2004). Similarly, Malterud & Hollnagel (2005) also found that providers viewed expressed empathy to be of benefit to patients.

Patients may also perceive PSD differently based on the treatment setting. For instance, PSD in a surgical setting was related to higher patient satisfaction and reports of warmth, friendliness, comfort, and reassurance (Beach, Roter, Rubin, et al., 2004). Conversely, the authors found that PSD was related to lower satisfaction in a primary care setting. The authors suggest that perhaps PSD from surgeons conveyed more reassurance and a more tangible solution when patients faced an invasive procedure. It was suggested that receiving PSD was more crucial to surgical patients as opposed to primary care. For instance, patients within a surgical setting may be fearful of an upcoming procedure and more willing to express their concerns or fears about a procedure, prompting PSD from a provider. This increased fear or apprehension about a procedure may increase the value of PSD with patients viewing it as more helpful and reassuring. Further, patients in a surgical setting may have clearer information and expectations about their health and treatment, which may lead them to view surgery as a solution that comes directly from the provider. Thus, these findings posit the idea that specialty providers' intent to use self-disclosure for patient benefit may be cultivated to better address patient

concerns. More research is needed to determine whether PSD would be similarly helpful with other specialists.

Additional research identifying strategies that allow for delivery of PSD in a standardized, consistent format would allow for more clear indication of which disclosures are most effective at improving patient outcomes, with a need to be specific to each setting. Delivering a health care provider biography may be one way to offer standardized PSD.

Provider Self-Disclosure: Biographies

A biography is a summary of activities that account for a person's life, often including accomplishments and credentials. Biographical information has been used within the medical field and has been recognized as a method that could bolster PCC. In fact, biographical information is already available online at many medical settings for patients to see, though this is often not something facilities have done based on research. Perrault and Smreker (2013) did a content analysis of online biographies, and found they were characterized by basic professional information such as provider name, specialty, schooling (e.g., where they attended medical school and residency). A subset of biographies also contained professional interests such as interest in the field and organizations. The least common type of biography also included personal information such as where the provider was born and raised, hobbies, and the provider's view towards how they deliver care (Perrault & Smreker, 2013). This trend of including personal information in providers' biographies has evolved slightly over the past decade with more relevant and detailed information provided (Perrault et al., 2021), but still is not overly common. This research has brought clarity to the current state of biographies - however, there is a great

variety in information presented by facilities and settings. Research has begun exploring what information patients would find relevant and helpful, as a potential step towards PCC and improving PPR. After all, the field has already begun to use these biographies – it stands to reason that research could help identify and maximize any potential benefit, especially as appropriate PSD can be helpful (Arroll & Allen, 2015).

In fact, Sprinkles (2015) found that patients reported perceiving value in increased biographical information across personal and professional domains, ranging from their provider's school, initial reason for pursuing a career in medicine, family information, marital status, pets, vacations, general lifestyle habits, health information, exercise preferences, interests, home area, and religious beliefs. Patients in the study believed that inclusion of this information would have intrinsic benefit on the perception of their provider, postulating that it would result in greater trust, improved relationship, and feeling more comfortable with their provider (Sprinkles, 2015). This suggests that tailoring biographical information can further convey and reflect a provider's relatability (which could theoretically improve the PPR) and commitment towards providing PCC to the patient. In fact, Perrault (2020) found that patient perceived similarity to provider was associated with a greater degree of satisfaction towards their appointment. Information can also be included to address other aspects of PCC such as empathy (e.g., having providers explain their attitude toward patient care and why they got into medicine). Also, considering research suggesting that PSD is frequently used but not always seen as helpful (McDaniel et al., 2007), perhaps deliberate PSD in a written format will help provide a better experience to the patient. This strategy also provides a simple, standard way for providers to implement PCC without increasing the time burden. Even further, perhaps this information can be used to cultivate and train providers on the most beneficial types of information to disclose to

the patient. Having information in a written format will also allow patients to learn broadly about their provider and may facilitate patient-initiated conversations about areas of interest or similarity, letting a provider know which aspects patients find most relevant.

Basing research on what patients believe is beneficial is a suitable starting point towards improving outcomes and establishing ways to improve quality of healthcare delivery. Though it is not common to supply biographies with professional information, and it is even rarer to supply personal information, research does suggest that patients appear to request both types of information (Sprinkles, 2015). Thus, a discussion of each is warranted.

Professional Information

Professional information is an important component of provider biographies, and this information is most typically freely available. In the modern internet era, patients can easily access information about their medical institution and provider prior to their first meeting. This information can help inform the selection of a provider, as well as influence outcomes at the first medical visit. Research in a university health clinic setting found that in terms of professional information, patients wanted to know about their provider's philosophy of care, certifications, area of specialization and time experience practicing medicine (Perrault, 2015). Even information about a provider's degree and their area of expertise may be crucial to convey, as some college student patients did not know the difference between physicians, physicians' assistants, and nurse practitioners (Perrault, 2015). Fortunately, when students were exposed to information about the role and job duties of nurse practitioners and physician assistants, they reported improved perceptions of expertise of their provider (Perrault, 2018). Perceptions of expertise may be even more relevant in training settings, such as the perception of fellows and advanced trainees by patients.

Personal Information

If supplying a biography, health care providers are likely to include professional information and related information, such as philosophy of care, but are less likely to include personal information such as hobbies (Perrault, 2014). Yet, patient desire to learn personal information about their provider has been documented. Research on characteristics that patients look for when selecting a new provider in a family medicine setting revealed that they rank a provider's interpersonal communication skills (Razzouk et al., 2004) above provider's expertise (Fanjiang et al., 2007), suggesting that personal factors may be even more influential than professional factors regarding perception of care in primary care. In continued support of this, patients also even ranked personal information over professional information in terms of quality of care (Perrault & Silk, 2016). Further, patients report improved outcomes with exposure to provider personal information. Within the university health clinic setting, including personal information about providers helped patients feel that providers were more relatable, familiar, and human-like (Perrault et al., 2015). Further, when supplied with personal information, similarities in background or preferences may be identified, and patients respond more favorably when they perceive a greater similarity with their provider (Perrault, 2015). In a follow-up study, patients were asked to select a provider to treat a hypothetical ailment based on a manipulated provider biography (Perrault & Silk, 2015). The authors found that perceived similarities or concordance between patient and provider were associated with decreased uncertainty, increased liking, and decreased apprehension communicating (Perrault & Silk, 2015). Using a video format, provider biographies containing personal information were associated with reduced communication apprehension within patients and lower uncertainty for new patients (Perrault, 2017; Perrault & Silk, 2016). Biographies can be brief while still impacting outcomes (Perrault, 2021). However,

video may not necessarily be a crucial component. Perrault also demonstrated that transcripts of videos can be effective in addressing patient communication uncertainty if the text biography contains personal information (Perrault, 2017). In turn, patients were more likely to select providers with whom they reported lower levels of communication uncertainty.

In summary, professional information within a biography is certainly important and can educate patients on essential details. Personal information appears to be highly desired by the patient and has indeed produced favorable outcomes, even with just written modalities. Increasing the specificity of provider biographies can help patients select providers better meet their healthcare needs which is in line with PCC. Further, this may decrease doctor shopping and lead towards long term care with providers (Perrault et al., 2021).

Purpose of the Study

The purpose of the study was to examine the effect of provider biographical information on the perceptions of patient-centered care and the patient-provider relationship in a cardiology practice setting. This was a feasibility study aimed at quality improvement for healthcare delivery.

1. The first aim of this study was to examine the feasibility of providing written biographic information on cardiology fellows to cardiac patients and its acceptability.

Hypothesis 1. It was hypothesized that at least 75% of participants would read the provider biographies. It was further hypothesized that more participants in the intervention group would have read the information provided to them (i.e., biography versus facility information) than the control group.

Aim 2. The second aim was to evaluate the impact of biographical information about providers on patients' perceptions of their provider's PCC behavior, the quality of the patient-provider relationship, and the action of patients asking a question.

Hypothesis 2. It was hypothesized that providing information about the patients' provider would increase patient perception of PCC behavior and the quality of the PPR. It was also hypothesized that patients would feel more comfortable asking their provider questions when provided biographies about the providers.

Aim 3. The third aim was exploratory, based on previous literature (Sprinkles, 2015) in which qualitative data would be used to assess what information patients would like to know about their providers and other special considerations unique to this patient population or cardiology practice.

Hypothesis 3. It was hypothesized that at least 25% of participants would provide information about what they would like to know about their provider. Qualitative data was analyzed in a post hoc fashion without assumption from researchers.

Chapter II: Methods

Participants

Participants were recruited for the study at East Carolina Heart Institute during routine cardiology clinic staffed by cardiology fellows and faculty attending physicians. Inclusion criteria require that patients be 18 or older, self-report as literate, speak English proficiently, complete informed consent, have a cardiac-related diagnosis, and have a scheduled appointment with their provider. Exclusion criteria included the patient indicating that they did not read the biographical information provided (either control or intervention arm). A power analysis conducted using G*Power indicated a sample size of 102 would be sufficient for a medium effect size. Therefore, a sample of 102 was estimated as sufficient for detecting potential between group differences. However, we sought a larger sample to address any possible sampling biases and to provide more data on the feasibility of the project.

Procedure

Potential participant recruitment were randomly assigned to one of two groups using week as docking variable. For example, the first and third week of the month, the intervention arm, with the second and fourth week of the month served the control arm. This method was selected to reduce contamination of information and treatment condition between study arms.

Prior to their appointment, patients were informed about the study and asked to participate. If they agreed, informed consent was presented and reviewed. Then, during intervention days, patients were given a biography about their provider (see Appendix A). During control days, patients were handed basic information about East Carolina Heart Institute (ECHI) taken from the institution's website (see Appendix B). The information provided was written at a 5th grade reading level. All patients then attended their appointment. After the

appointment, patients completed outcome measures and physicians completed a five-question survey.

Materials

Provider Biography. Provider biographies were created for each participating provider at a cardiology fellowship. Information in these biographies was based on qualitative literature of what patients would like to know about their provider and what they believe would be beneficial to know. Providers were supplied a list of 30 questions across personal and professional domains and instructed to only answer questions they felt comfortable answering. Questions were then compiled to create a single page biography by the researchers (see Appendix C). Providers were presented then consulted for final approval of their biography.

Control Biography. During control days, patients were handed basic information about ECHI taken from the institution's website and fit on a single piece of paper (see Appendix B)

Measures

Demographics. Patient demographic information was collected from medical records including age, gender, ethnicity, patient history with ECHI and current medical provider. Physician demographics were collected by self-report including age, gender, ethnicity, years of education, and native language. Other information collected included the number of visits with the provider or whether this was the patient's first appointment with the provider. The reason for the appointment was also noted.

Participants Measures. Participants completed the following measures at their visit:

Patient-Professional Interaction Questionnaire (PPIQ)

The Provider-Patient Relationship Questionnaire (PPRQ) was designed to assess "PCC behavior" from a provider perspective in a hospital setting, but it has also been adapted to assess

PCC from the patient perspective as opposed to the provider's perspective; Patient-Professional Interaction Questionnaire (PPIQ; Casu et al., 2019). A confirmatory factor analysis retained the original four-factor structure (Gremigni et al., 2016). The PPIQ utilizes a five-point Likert scale to answer 16-items and is comprised of four subscales: Effective Communication (EC), Interest in Patient's Agenda (IPA), Empathy (E), and Patient Involvement in Care (PIC; see Appendix D). EC questions related to provider communication style, such as paying attention to the patient and providing clear information. The subscale IPA assesses the provider's understanding of their patient's feelings and knowledge surrounding their disease and care. The E subscale assesses provider's ability to take their patient's perspective. Lastly, the PIC subscale assesses the provider's actions that encourage a patient's engagement in their care by creating opportunities for them to take an active role in their care. The subscale scores can be summed for a global score of provider's overall PCC behavior with a minimum score of 16 maximum score of 80. No cutoffs are used to interpret data, however, data from other studies provide comparison score measuring physicians and surgeons in an Italian ($M = 59$ SD 8.44; Casu et al., 2019). The scale demonstrated good internal consistency for the combined scale ($\alpha = .95$) and for each subscale: EC ($\alpha = .86$), IPA ($\alpha = .92$), E ($\alpha = .76$) and PIC ($\alpha = .85$). The scale has demonstrated sensitivity over multiple visits with the same provider (Casu et al., 2019).

Patient-Doctor Depth of Relationship Tool (PDDR)

The PDDR assesses the depth of the patient provider relationship, or "PPR Quality" (Ridd et al., 2011; see Appendix E). The scale consists of a single factor solution containing eight-items that use a five-point Likert scale, including statements such as "I know this doctor very well" and "I know what to expect with this doctor." It has been found to have high reliability ($\alpha = .93$) and

demonstrated good test-retest reliability (.87; Ridd et al., 2011). The scale was identified in a recent systematic review as a strong measure to be used in primary care (Ball et al., 2018).

Perceived Benefit of Provider Information: Sprinkles (2015) Survey

Exploratory questions formulated by Sprinkles (2015) in a rural health clinic were used to assess PPR (Sprinkles, 2015). An eight-item scale was designed to examine the connection between PSD and patient trust, including patient beliefs about the benefits of knowing personal information about their provider. Patients were asked to use a four-point Likert scale to assess the extent that they agree with statements about the patient-provider relationship (see Appendix F). Results appeared to vary based on demographic variables including age and gender. A qualitative item was included to assess types of information that patients believed would be beneficial to know about their provider.

Manipulation Check. Following study measures, a manipulation check was also utilized to determine if patients participated in the intervention. In addition to the outcome measures, participants were asked questions to determine if patients read the biography, if they had prior exposure to information about their provider, and to assess their perceptions about the utility of the biography.

Provider Measures. To minimize intrusion on patient care, providers were asked five questions after the medical encounter, regardless of group (see Appendix G). Questions pertained to patient behavior and perception about the benefit and usability of the biography. Providers responded to the first three questions in a yes/no format or select a response from a list. Two additional questions assess the feasibility of the measure measured on a five-point Likert Scale ranging from strongly disagree to strongly agree. “

Data Analysis Plan

All analyses were conducted in SPSS 28 (IBM Corp., 2021). Data was cleaned and screened before proceeding with analysis, including identification of outliers and normality. Descriptive statistics were first utilized to examine characteristics of the overall sample. Preliminary analyses were run to ensure there are no significant group differences in terms of basic demographics. Any identified significant differences were used as covariates.

Hypothesis One. Simple descriptive statistics were computed on the information regarding whether participants read the provider biography. An independent t-test was utilized to evaluate whether the control and independent group differ in terms of reading information provided to them.

Hypothesis Two. An independent t-test was performed to evaluate whether receiving information about providers increases patient trust in their provider. The independent variable was group membership (control or intervention) and the outcome variable was patient perception of relationship and perception of provider patient-centered care behavior (in separate analyses). A chi-square was utilized to analyze whether patients feel more comfortable asking their provider questions when presented with information about their provider.

Hypothesis Three. Simple descriptive statistics were computed on the qualitative information provided about what patients would like to know about their provider. It was hypothesized that differences would exist between groups, as the group reading the biography had access to provided information.

Chapter III: Results

Provider Demographics

Provider demographics consisted of 12 cardiology fellows enrolled in a 3-year fellowship, with 4 fellows in each year. Patients were evenly distributed among the three groups with 30% of patients ($N=60$) being seen by a first-year fellow, 34.5% of patients ($N = 69$) being seen by a second-year fellows saw) and 34.5% of patients ($N = 69$) being seen by a third-year fellow. All fellows answered questions pertaining to both personal and professional aspects of their life.

Provider Biographies

All fellows answered questions pertaining to both personal and professional aspects of their life with an average word count of 280 words. Reading level was evaluated with a target of 5th level. Reading level of 10 was considered acceptable for the study. The control biography contained 263 words with a reading level of 13.1 reading level.

Descriptive statistics

During recruitment, 259 participants were approached to participate in the study; 23% of patients ($N = 59$) either declined to participate or did not have enough time to read the biography prior to their appointment. A total of 200 patients, 98 in the intervention and 100 in the control group were included in the study (see Table 1). Significant differences existed for ethnicity with all Hispanic patients being randomized to the control group. However, ethnicity was not used as a covariate in the analyses. Additionally, 100% of patients in the study reported reading the study material (provider biography or control).

Table 1
Descriptive Statistics

	Intervention	Control
Age (<i>M</i> and <i>SD</i>)	<i>M</i> <i>SD</i> 61.55 ±14.89	<i>M</i> <i>SD</i> 63.91±13.13
Charleson Comorbidity Index	3.82±2.42	3.92±2.25
Sex	% <i>N</i>	% <i>N</i>
Male	59.2% (<i>N</i> = 58)	50 (<i>N</i> = 50)
Female	40.8% (<i>N</i> = 40)	50 (<i>N</i> = 50)
Gender	% <i>N</i>	% <i>N</i>
Male	59.2 % (<i>N</i> = 58)	50% (<i>N</i> = 50)
Female	39.8 % (<i>N</i> = 39)	50% (<i>N</i> = 50)
Transgender/nonbinary	1% (<i>N</i> = 1)	0 % (<i>N</i> = 0)
Sexual Orientation	% <i>N</i>	% <i>N</i>
Straight/Heterosexual	92.9 % (<i>N</i> = 91)	98 % (<i>N</i> = 98)
Gay	1 % (<i>N</i> = 1)	1 % (<i>N</i> = 1)
Lesbian	2 % (<i>N</i> = 2)	0 % (<i>N</i> = 0)
Bisexual	2 % (<i>N</i> = 2)	0 % (<i>N</i> = 0)
Other	2 % (<i>N</i> = 2)	1 % (<i>N</i> = 1)
Ethnicity	% <i>N</i>	% <i>N</i>
Non-Hispanic	100% (<i>N</i> = 100)	94 % (<i>N</i> = 94)
Hispanic	0% (<i>N</i> = 0)	6 % (<i>N</i> = 6)
Race	% <i>N</i>	% <i>N</i>
Black	49% (<i>N</i> = 48)	47% (<i>N</i> = 47)
White	46.9% (<i>N</i> = 46)	43% (<i>N</i> = 43)
Latino/Latina	0% (<i>N</i> = 0)	5% (<i>N</i> = 5)
Asian/ Asian American	1% (<i>N</i> = 1)	0 % (<i>N</i> = 0)
American Indian/ Alaskan Native	1% (<i>N</i> = 1)	1 % (<i>N</i> = 1)
Middle Eastern/ North African	0% (<i>N</i> = 0)	2 % (<i>N</i> = 2)
Multiple	2% (<i>N</i> = 0)	1 % (<i>N</i> = 1)
Other	0% (<i>N</i> = 0)	1 % (<i>N</i> = 1)
Education	% <i>N</i>	% <i>N</i>
Some High school	12.2% (<i>N</i> = 12)	14 % (<i>N</i> = 14)
High school or GED	33.7% (<i>N</i> = 33)	27% (<i>N</i> = 27)
Some college or associates	31.6% (<i>N</i> = 31)	40% (<i>N</i> = 40)
Completes college degree	11.2 % (<i>N</i> = 11)	7 % (<i>N</i> = 7)
Graduate or professional	10.2 % (<i>N</i> = 10)	10 % (<i>N</i> = 10)
Missing	1 % (<i>N</i> = 1)	0 % (<i>N</i> = 0)
Income	% <i>N</i>	% <i>N</i>
Less than \$20,000	28.6% (<i>N</i> = 28)	33% (<i>N</i> = 33)
\$20,000 to \$34,999	20.4% (<i>N</i> = 20)	19% (<i>N</i> = 19)
\$35,000 to \$49,999	14.3% (<i>N</i> = 14)	13% (<i>N</i> = 13)
\$50,000 to \$74,999	12.2% (<i>N</i> = 12)	8% (<i>N</i> = 8)
\$75,000 to \$99,999	7.1% (<i>N</i> = 7)	10% (<i>N</i> = 10)
Over \$100,000	10.2% (<i>N</i> = 10)	9% (<i>N</i> = 9)
Missing	7.1% (<i>N</i> = 7)	8% (<i>N</i> = 8)

Aim One

Initial plan was to use an independent t-test to assess feasibility of biographies as an intervention. Examination of descriptives revealed no group differences with all participants in the intervention ($N = 98$; $M = 1$, $SD = 0$) control ($N = 100$; $M = 1$, $SD = 0$) having read the biography.

Aim Two

An independent t-test was used to evaluate whether receiving information about providers increased patient trust in their provider.

Patient Centered care. The 98 participants who received the cardiology fellow biography intervention ($M = 74.54$, $SD = 11.34$) compared to the 100 participants in the control group ($M = 69.83$, $SD = 15.28$) reported significantly higher patient perceptions of physicians patient centered care behaviors scores, $t(195) = 23.05$, $p = .003$. The scale had high internal consistency ($\alpha = .98$), which was comparable to previous literature.

Patient Doctor Depth of Relationship. The 98 participants who received the cardiology fellow biography intervention ($M = 26.72$, $SD = 6.57$) compared to the 99 participants in the control group ($M = 23.75$, $SD = 15.28$) reported significantly higher depth of relationship with their physicians, $t(196) = 2.461$, $p = .015$. The scale had high internal consistency ($\alpha = .92$) which was comparable to previous literature.

Patients Asking Questions. A chi-square test of independence was performed to examine the relation between treatment group (control or provider biography) and whether patient asked provider a question. The relation between these variables was significant, $X^2(1, N = 198) = 6.58$, $p = 0.01$: individuals who received a biography of their cardiology fellow were more likely to

ask a question during their regular medical appointment than patients who received a control biography.

Aim Three

Qualitative. Descriptive statistics were analyzed on participants’ interest in learning information about their providers. A total of 53 (26.5%) participants completed entered qualitative data. Responses were comparable across groups with 29 participants in the intervention group and 24 participants in the control group. Themes in responses include information about provider’s hobbies, beliefs, and education (See Table 2.) This qualitative question was an item within the Sprinkles Survey. The scale had high internal consistency ($\alpha = .81$).

Table 2

Qualitative Data Summary

	Intervention (N)	Control (N)
Total	29	24
Hobbies	8	10
Belief	13	5
Professional Qualifications	11	5
Family	8	3
Personal Medical Info	3	1
Only want professional/Personal is private	3	3

Responses to the following question: Please list any and all topics that you feel would be beneficial for a patient to know about their medical provider (e.g., Family, Hobbies, Beliefs etc.)

Chapter IV: Discussion

The current study focused on examining the feasibility of using provider biographical information as an intervention and its effect on patient perception of PCC behavior and patient perception on the quality of the relationship.

Provider Demographics. Provider demographics consisted of 12 cardiology fellows enrolled in a 3-year fellowship, with 4 fellows in each year. Patients were evenly distributed among the three groups with 30% of patients ($N=60$) being seen by a first-year fellow, 34.5% of patients ($N=69$) being seen by a second-year fellows saw) and 34.5% of patients ($N=69$) being seen by a third-year fellow. All fellows answered questions pertaining to both personal and professional aspects of their life.

Provider Biographies. To standardize biographies, providers were provided with a list of questions based on literature of what patients would like to know about their medical provider (Sprinkles, 2015). To preserve provider privacy, instructions were given to only answer questions they felt comfortable answering to enhance perceptions of provider privacy. Additionally, provider biographies were aggregated when running analyses to protect anonymity of providers individual rating of PCC and PPR. However, biographies were deemed similar across providers by the research team.

Hypothesis One: Feasibility

The first hypothesis regarded the feasibility of providing patients with biographical information about their providers was partially supported as with all patients in both the intervention and control group having read the biography. Acceptability of reading a one-page biography was high, revealing no group differences. Of note, patients who did not have enough time to read the biography in either group were not enrolled in the study. Interestingly, there were no group differences reading biographies within the intervention or control group. Patients

may have seen relevance of learning information from the control biographies (information about the medical facility), even though it did not influence perceptions of their provider.

Hypothesis Two: PCC, Patient-Provider Relationship and Behavioral Marker

The second hypothesis was to evaluate the impact of biographical information about providers on patient's perception of their provider's PCC behavior, the quality of the patient-provider relationship, and the action of patients asking a question. Results supported these hypotheses with patients who read biographical information about their providers perceived their providers as engaging in higher levels of patient-centered care behavior, having higher levels of relationship depth with their providers, and were more likely to ask a question during their consult.

PCC. Patient centered care has demonstrated importance within the medical field, as well as in specialty settings. The American College of Cardiology (Walsh, et al., 2012) has echoed the importance of increasing PCC within cardiology discipline. This study demonstrated that a patient's perception of their provider's PCC behavior was modifiable. The study defined patient centered care behavior as effective communication, interest in patient's agenda, empathy, and patient involvement in care. Exposure to provider biographical information significantly improved perceptions of this information. Scores on the PPIQ for both control and intervention group, were significantly higher than average score within an Italian sample of 1139 patients across six hospitals assessing inpatient and outpatient services ($M = 59$ SD 8.44; Casu et al., 2019). More research is needed to ascertain the difference between these scores including medical specialty of the provider and cultural norms related to patient and provider interactions.

Prior history with medical providers has been shown to significantly influence PCC behavior (Casu et al., 2018), with patients reporting significantly higher ratings on global PPIQ.

The potential for a cardiac patient to have prior experience with their provider in an inpatient setting demonstrated a greater effect size improving PPIQ scores across subsequent visits (Casu et al., 2018). A potential explanation for this difference is that inpatient care is often emergent, with higher levels of care required from providers which may equate to more time spent with patients. Additionally, patients may endorse higher levels of gratitude for providers who delivered “live saving” care during inpatient visits, which may increase perceptions of trust and professionalism. More research is needed to explore the potential carry-over effects for patients who have both inpatient and outpatient experience with a provider to determine intricacies of the patient provider relationship across settings.

Patient reported outcomes, such as PCC, have been shown to differ from general to specialty settings (Casu et al., 2018). In general practice, a patient’s first appointment in an outpatient setting is often their first encounter with that provider. While this is generally true within cardiology, a subset of patients first meets their cardiologist in an emergent and inpatient setting prior to being followed-up with the same cardiologist in an outpatient setting. This standard of practice can influence patient and doctor perceptions within an outpatient cardiology visit. For instance, patients may admit to their first medical appointment being grateful for their provider who provided life-saving care during a hospital admission. Similarly, cardiologists who follow a patient from inpatient to outpatient may have a more intimate understanding and investment in a patient.

Provider-Patient Relationship. The importance of the patient-provider relationship continues to be emphasized with incomplete tactics to achieve it. In this study, exposure to biographical information increased the patient’s perceived depth of their relationship. A biography rooted in information that patient’s expressed interest in knowing may provide an

additional instance of communication between patients and their providers. The guided provider self-disclosure can help providers identify the overlap between the information they are willing to share and the information that patients have stated is beneficial. With medical visits being relatively brief, provider biographies may decrease reluctance and uncertainty about their medical provider at no expense of time allotment for care provision.

Behavioral Marker. The current study examined whether patients were more likely to ask questions during their medical visit when exposed to provider biographical information. Patients in the intervention group were significantly more likely to ask a question during their consult as compared to patients in the control group. One proposed mechanism is that reading information about providers may make providers more approachable. This supports previous research that providing biographical information can decrease apprehension in communicating with providers (Perrault, 2015; Perrault & Silk, 2015; Perrault, 2017; Perrault & Silk, 2016). Increasing patient engagement during their medical visit is another facet of improving patient-centered care.

Hypothesis Three: Exploratory and Qualitative Data

The third aim of the study was exploratory in nature, which examined qualitative data about what patients wanted to know about their providers. Approximately one quarter of patients responded to the question. Response rates were similar across groups. Qualitative responses in the intervention group revealed patients wanted to know more domains (e.g., hobbies, religion etc.) of their providers' life as compared to the control group. For instance, patients in the intervention group were more likely to express interest in learning about a provider's beliefs, professional qualifications and family as compared to the control group. Conversely, participants in the control group were more likely to ask about a provider's hobbies, as they did not receive

any information on this domain. A subset of patients ($N=6$), in both groups indicated that they only wanted to learn about a provider's professional qualifications, stating that personal information was private.

These qualitative responses highlighted the competing needs of preserving patient privacy, patient's curiosity, and the pursuit of delivering more patient-centered care. In the current study, biographies were constructed with provider responses to questions related to personal and professional domains of their life with instructions to only answer questions they felt comfortable answering. While patients demonstrated observable benefit from provider biographies in terms of patient centered care behavior and depth of relationship, they simultaneously expressed desire to learn information personal information that place providers in a potentially vulnerable position (e.g., spiritual beliefs and ethnicity).

To date, only one other peer reviewed study asked patients what they want to know about their providers (Sprinkles, 2015), and this was the first study to use the research literature to inform the construction of the content with their provider biographies. Qualitative findings from this study can be used to inform future biographies to incorporate information that patients report value in knowing.

Contributions of Current Study

This study extends the literature by identifying an intervention that was feasible and accessible to patients and practices (Perrault, 2014). This was the first study to examine fellows and trainees within cardiology. Fellowship poses an excellent opportunity to heed the call of the American College of Cardiology by demonstrating the value of PCC to cardiology fellows that may have cascading effects as they become independent practitioners. Second, qualities identified on PPIQ and PDDR scales can be used to highlight strengths and growth edges for

emerging providers, which can inform trainings within a cardiology fellowship; tailoring training to improve patient outcomes and to improve provider “bedside manner” as relating to patients is a skill that can be improved through training (Silverman 2009). Third, this study demonstrated the feasibility of using biographies to improve patient reported outcomes as many providers already have professional information about themselves freely available online which can be imbued with personal information (Perrault, 2014). Additionally, the scale was seen to have minimal burden on providers related to rate of workflow. Fourth, the intervention demonstrated increased patient engagement in their medical appointment through the behavioral marker of asking a question during their medical visit. This tangible outcome further illustrates the utility of improving patient perceptions of their medical providers and their medical encounters. Fifth, provider biographies were informed based on information that patients expressed a desire to know, infusing patient centered care into the design of the intervention. Aligning with patients to improve patient centered care can be an ongoing process that will likely improve outcomes throughout the medical encounter. Sixth, this study strengthens the utility of the PPIQ and PDDR by measuring patients in new settings including specialty (cardiology), nationality (American sample), and across diverse patient demographics (education, nationality, race, ethnicity, gender, socioeconomic status).

Limitations

This study had several limitations. First, due to the exploratory nature of this research, multiple T-tests were conducted, increasing the risk of type 1 error. Second, administrative factors, such as appointment length and whether the appointment started late or on time, may influence the patient’s perceptions of their provider and may have influenced results, as this was not controlled for in this trial. Third, medical severity may also have influenced ratings as more

complicated clinical presentations may be less affected by knowledge about the provider. Fourth, prior history with provider may play a larger role in PPR in cardiology visits, given that patients can be seen in both in and outpatient settings with differing levels of acuity. Fifth, patient knowledge of who their provider is, may be important to examine broadly, but in a training, clinic setting there are always both a cardiology fellow and an attending and that may provide some blunting of the effect of just learning about the cardiology fellow. Sixth, the study was not able to be double blinded as providers may have known about which treatment group their patient was assigned. This may lead to influence results via the Hawthorne effect, where results are influenced by the knowledge that they are being studied. Seventh, the sample was from a single center which primarily serves patients in a rural area which limits the generalizability of the data. Lastly, 20% of patients approached in the study declined participation in the study; this may inadvertently screen patients who have less favorable perceptions of their healthcare.

Future Directions

This study illustrates the importance and the ease of incorporating patient centered care within a cardiology setting. First, continued refinement of provider biographies may be helpful in optimizing treatment intervention, while minimizing patient and provider burden. Continued assessment and utilization of patient qualitative data regarding what patients would like to know about their providers would ensure that provider self-disclosure remains patient centered. The current study was only possible due to the provider's willingness to answer both personal and professional questions about their life. Replications of this work would benefit from balancing patient curiosity with provider privacy. A parsimonious solution is to enrich the information that most providers feel comfortable disclosing. One possible solution is to for providers to answer "why" questions related to their profession. For example, expressing why a provider enjoys

cardiology or why they like patient care allows providers to convey their philosophy towards care and can help patients anticipate how their provider will act, prior to the medical encounter. Fourth, the format of biographies could be delivered in video format, limiting literacy concerns, while conveying additional information about a medical provider. Fifth, future research may explore structural approaches to improve patient reported outcomes. Clinics could outline expectations for medical care with trainees by educating patients on their qualifications, as well as explaining the role of the attending physician to aid in continuity of care across multiple cardiology fellows. Steps may also be taken to emphasize the importance of training clinics (e.g., you are helping shape the next generation of cardiologists) and highlighting the strengths of training clinics, such as having the expertise of a team of cardiologists rather than just one provider. Sixth, exploring other structural factors related to the patient encounter would be interesting including appointment length and timeliness of appointment (e.g., was the clinic behind schedule). Seventh, dismantling studies would be helpful in identifying salient information within provider biographies and help further refine the intervention. Eighth, exploring the unique patient factors of patients in a cardiology setting including adjustment to chronic illness, frequency of appointments (e.g., annually). Ninth, Cronbach's alpha statistic for treatment outcomes were $> .9$ which may indicate redundancy across items (Tavakol & Dennick, 2011). Future studies may benefit from refinement of scales to minimize patient burden. Tenth, exploring provider outcomes related to improvement in PCC and PPR, such as burnout or provider satisfaction would be interesting to determine if improving patient outcomes has a bidirectional effect. Lastly, provider information may inadvertently highlight differences that facilitate bias amongst patients such as providers country of origin. Steps to protect providers from discrimination or bias from patients should be explored.

Chapter V: Conclusion

For over a decade, the American College of Cardiology has called for increased attention to improving patient-centered care within the field of cardiology (Walsh, et al., 2012). The current study sought to apply literature related to patient-centered care, the patient provider relationship and physician self-disclosure to improve patient healthcare experience. Presenting patients with literature-informed, provider biographical information significantly improved perceptions of their provider's patient-centered care behavior, perceptions of the provider-patient relationship, and were more engaged in their medical visit. This study offers a viable and low-cost method of improving patient-centered care with minimal provider burden which can be implemented at any clinic.

References

- Algurén, B., Jernberg, T., Vasko, P., Selb, M., & Coenen, M. (2021). Content comparison and person-centeredness of standards for quality improvement in cardiovascular health care. *PLOS ONE*, *16*(1), e0244874. <https://doi.org/10.1371/journal.pone.0244874>
- Arroll, B., & Allen, E. C. F. (2015). To self-disclose or not self-disclose? A systematic review of clinical self-disclosure in primary care. *British Journal of General Practice*, *65*(638), e609–e616. <https://doi.org/10.3399/bjgp15X686533>
- Attale, C., Lemogne, C., Sola-Gazagnes, A., Guedeney, N., Slama, G., Horvath, A.-O., & Consoli, S.-M. (2010). Therapeutic alliance and glycaemic control in type 1 diabetes: A pilot study. *Diabetes & Metabolism*, *36*(6), 499–502. <https://doi.org/10.1016/j.diabet.2010.08.003>
- Ball, L. E., Barnes, K. A., Crossland, L., Nicholson, C., & Jackson, C. (2018). Questionnaires that measure the quality of relationships between patients and primary care providers: A systematic review. *BMC Health Services Research*, *18*(1), 866. <https://doi.org/10.1186/s12913-018-3687-4>
- Bandura, A. (1978). The self system in reciprocal determinism. *American Psychologist*, *33*(4), 344.
- Beach, M. C., Roter, D., Larson, S., Levinson, W., Ford, D. E., & Frankel, R. (2004). What do physicians tell patients about themselves?: A qualitative analysis of physician self-disclosure. *Journal of General Internal Medicine*, *19*(9), 911–916. <https://doi.org/10.1111/j.1525-1497.2004.30604.x>
- Beach, M. C., Roter, D., Rubin, H., Frankel, R., Levinson, W., & Ford, D. E. (2004). Is physician self-disclosure related to patient evaluation of office visits? *Journal of General Internal Medicine*, *19*(9), 905–910. <https://doi.org/10.1111/j.1525-1497.2004.40040.x>

- Beckman, H. B. (1994). The doctor-patient relationship and malpractice. Lessons from plaintiff depositions. *Archives of Internal Medicine*, *154*(12), 1365–1370.
<https://doi.org/10.1001/archinte.154.12.1365>
- Bekelman, D. B., Plomondon, M. E., Carey, E. P., Sullivan, M. D., Nelson, K. M., Hattler, B., McBryde, C. F., Lehmann, K. G., Gianola, K., & Heidenreich, P. A. (2015). Primary results of the patient-centered disease management (PCDM) for heart failure study: A randomized clinical trial. *JAMA Internal Medicine*, *175*(5), 725–732.
- Casu, G., Gremigni, P., & Sommaruga, M. (2019). The Patient-Professional Interaction Questionnaire (PPIQ) to assess patient centered care from the patient’s perspective. *Patient Education and Counseling*, *102*(1), 126–133. <https://doi.org/10.1016/j.pec.2018.08.006>
- Cegala, D. J. (2011). An Exploration of factors promoting patient participation in primary care medical interviews. *Health Communication*, *26*(5), 427–436.
<https://doi.org/10.1080/10410236.2011.552482>
- Dunlay, S. M., & Chamberlain, A. M. (2016). Multimorbidity in older patients with cardiovascular disease. *Current Cardiovascular Risk Reports*, *10*(1), 1–9.
- Eigeland, J. A., Jones, L., Sheeran, N., & Moffitt, R. L. (2022). Critical physician behaviors in the formation of a good physician-patient relationship: Concept mapping the perspective of patients with chronic conditions. *Patient Education and Counseling*, *105*(1), 198–205.
<https://doi.org/10.1016/j.pec.2021.04.035>
- Elwyn, G., Frosch, D., Thomson, R., Joseph-Williams, N., Lloyd, A., Kinnersley, P., Cording, E., Tomson, D., Dodd, C., Rollnick, S., Edwards, A., & Barry, M. (2012). Shared decision making: A model for clinical practice. *Journal of General Internal Medicine*, *27*(10), 1361–1367.
<https://doi.org/10.1007/s11606-012-2077-6>

- Engel G. L. (1977). The need for a new medical model: A challenge for biomedicine. *Science*, 196(4286), 129–136. <https://doi.org/10.1126/science.847460>
- Epstein, R. M., & Street, R. L. (2011). Shared mind: Communication, decision making, and autonomy in serious illness. *The Annals of Family Medicine*, 9(5), 454–461. <https://doi.org/10.1370/afm.1301>
- Eveleigh, R. M., Muskens, E., van Ravesteijn, H., van Dijk, I., van Rijswijk, E., & Lucassen, P. (2012). An overview of 19 instruments assessing the doctor-patient relationship: different models or concepts are used. *Journal of Clinical Epidemiology*, 65(1), 10-15.
- Fanjiang, G., von Glahn, T., Chang, H., Rogers, W. H., & Safran, D. G. (2007). Providing patients web-based data to inform physician choice: If you build it, will they come? *Journal of General Internal Medicine*, 22(10), 1463–1466. <https://doi.org/10.1007/s11606-007-0278-1>
- Fuertes, J. N., Toporovsky, A., Reyes, M., & Osborne, J. B. (2017). The physician-patient working alliance: Theory, research, and future possibilities. *Patient Education and Counseling*, 100(4), 610–615. <https://doi.org/10.1016/j.pec.2016.10.018>
- Gobat, N., Kinnersley, P., Gregory, J. W., & Robling, M. (2015). What is agenda setting in the clinical encounter? Consensus from literature review and expert consultation. *Patient Education and Counseling*, 98(7), 822–829. <https://doi.org/10.1016/j.pec.2015.03.024>
- Goldfarb, M. (2017). A cardiology fellow’s guide to patient-centered care. *Journal of the American College of Cardiology*, 69(23), 2871–2874.
- Gremigni, P., Casu, G., & Sommaruga, M. (2016). Dealing with patients in healthcare: A self-assessment tool. *Patient Education and Counseling*, 99(6), 1046–1053. <https://doi.org/10.1016/j.pec.2016.01.015>

- Hudon, C., Fortin, M., Haggerty, J., Loignon, C., Lambert, M., & Poitras, M.-E. (2012). Patient-centered care in chronic disease management: A thematic analysis of the literature in family medicine. *Patient Education and Counseling*, 88(2), 170–176. <https://doi.org/10.1016/j.pec.2012.01.009>
- Kane, P. M., Murtagh, F. E. M., Ryan, K., Mahon, N. G., McAdam, B., McQuillan, R., Ellis-Smith, C., Tracey, C., Howley, C., Raleigh, C., O’Gara, G., Higginson, I. J., & Daveson, B. A. (2015). The gap between policy and practice: A systematic review of patient-centred care interventions in chronic heart failure. *Heart Failure Reviews*, 20(6), 673–687. <https://doi.org/10.1007/s10741-015-9508-5>
- Kelley, J. M., Kraft-Todd, G., Schapira, L., Kossowsky, J., & Riess, H. (2014). The influence of the patient-clinician relationship on healthcare outcomes: A systematic review and meta-analysis of randomized controlled trials. *PLoS ONE*, 9(4), e94207. <https://doi.org/10.1371/journal.pone.0094207>
- Laine, C., & Davidoff, F. (1996). Patient-centered medicine: A professional evolution. *Journal of American Medical Association*, 275(2), 152–156. <https://doi.org/10.1001/jama.1996.03530260066035>
- Levinson, W., Lesser, C. S., & Epstein, R. M. (2010). Developing physician communication skills for patient-centered care. *Health Affairs*, 29(7), 1310–1318.
- Malterud, K. (2005). The doctor who cried: A qualitative study about the doctor’s vulnerability. *The Annals of Family Medicine*, 3(4), 348–352. <https://doi.org/10.1370/afm.314>
- Mattingly, T. J., Tom, S. E., Stuart, B., & Onukwugha, E. (2017). Examining patient–provider relationship (PPR) quality and patient activation in the Medicare population. *Aging Clinical and Experimental Research*, 29(3), 543–548.

- McCarthy, M. (2014). US doctors are judged more on bedside manner than effectiveness of care, survey finds. *BMJ: British Medical Journal*, 349. JSTOR. <https://www.jstor.org/stable/26516731>
- McDaniel, S. H. (2007). Physician self-disclosure in primary care visits: enough about you, what about me? *Archives of Internal Medicine*, 167(12), 1321.
<https://doi.org/10.1001/archinte.167.12.1321>
- Mead, N., & Bower, P. (2000). Patient-centredness: A conceptual framework and review of the empirical literature. *Social Science & Medicine*, 51(7), 1087–1110.
[https://doi.org/10.1016/S0277-9536\(00\)00098-8](https://doi.org/10.1016/S0277-9536(00)00098-8)
- Mozaffarian, D., Benjamin, E. J., Go, A. S., Arnett, D. K., Blaha, M. J., Cushman, M., Das, S. R., de Ferranti, S., Després, J.-P., Fullerton, H. J., Howard, V. J., Huffman, M. D., Isasi, C. R., Jiménez, M. C., Judd, S. E., Kissela, B. M., Lichtman, J. H., Lisabeth, L. D., Liu, S., ... Turner, M. B. (2016). Heart disease and stroke statistics-2016 update: A report from the American heart association. *Circulation*, 133(4), e360. doi:10.1161/CIR.0000000000000350
- Myers, M. G. (1996). The white-coat effect in treated hypertension. *Blood Pressure Monitoring*, 1(3), 247–249.
- Park, M., Giap, T.-T.-T., Lee, M., Jeong, H., Jeong, M., & Go, Y. (2018). Patient- and family-centered care interventions for improving the quality of health care: A review of systematic reviews. *International Journal of Nursing Studies*, 87, 69–83.
<https://doi.org/10.1016/j.ijnurstu.2018.07.006>
- Perrault, E. K. (2014). The content of family physicians' online videos and biographies. *Family Medicine*, 46(3), 192-197.

- Perrault, E. K. (2015). Students' lack of knowledge regarding healthcare providers' duties, and their preferences for information when selecting new providers. *European Journal for Person Centered Healthcare*, 3(1), 113–121.
- Perrault, E. K. (2017). Helping patients reduce anxiety and choose new physicians through improved provider biographies. *Health Education Journal*, 76(6), 695–706.
<https://doi.org/10.1177/0017896917712298>
- Perrault, E. K. (2018). Campus health centers' lack of information regarding providers: A content analysis of division-I campus health centers' provider websites. *Health Communication*, 33(7), 860–866. <https://doi.org/10.1080/10410236.2017.1316635>
- Perrault, E. K. (2021). The diminishing returns for longer healthcare provider video biographies: A thin slice examination of patient decision-making. *Health Communication*, 36(5), 650–658.
<https://doi.org/10.1080/10410236.2020.1733230>
- Perrault, E. K., & Silk, K. J. (2015). Reducing communication apprehension for new patients through information found within physicians' biographies. *Journal of Health Communication*, 20(7), 743–750. <https://doi.org/10.1080/10810730.2015.1018569>
- Perrault, E. K., & Silk, K. J. (2016). The uncertainty reducing capabilities of primary care physicians' video biographies for choosing a new doctor: Is a video worth more than two hundred words? *Health Communication*, 31(12), 1472–1481. <https://doi.org/10.1080/10410236.2015.1082457>
- Perrault, E. K., & Smreker, K. C. (2013). What can we learn from physicians' online biographies to help in choosing a doctor? Not much. A content analysis of primary care physician biographies. *Journal of Communication in Healthcare*, 6(2), 122-127.

- Rathert, C., Wyrwich, M. D., & Boren, S. A. (2013). Patient-centered care and outcomes: A systematic review of the literature. *Medical Care Research and Review*, 70(4), 351–379.
<https://doi.org/10.1177/1077558712465774>
- Razzouk, N., Seitz, V., & Webb, J. M. (2004). What’s important in choosing a primary care physician: An analysis of consumer response. *International Journal of Health Care Quality Assurance*.
- Ridd, M. J., Lewis, G., Peters, T. J., & Salisbury, C., (2011). Patient-Doctor Depth-of-Relationship Scale: Development and validation. *Annals of Family Medicine*, 9(6), 538–545.
<https://doi.org/10.1370/afm.1322>
- Roumie, C. L., Greevy, R., Wallston, K. A., Elasy, T. A., Kaltenbach, L., Kotter, K., Dittus, R. S., & Speroff, T. (2011). Patient centered primary care is associated with patient hypertension medication adherence. *Journal of Behavioral Medicine*, 34(4), 244–253.
<https://doi.org/10.1007/s10865-010-9304-6>
- Shay, L. A., & Lafata, J. E. (2015). Where is the evidence? A systematic review of shared decision making and patient outcomes. *Medical Decision Making*, 35(1), 114–131.
<https://doi.org/10.1177/0272989X14551638>
- Silverman, J. (2009). Teaching clinical communication: a mainstream activity or just a minority sport?. *Patient Education and Counseling*, 76(3), 361-367.
- Sprinkles, H. (2015). The patient-provider relationship in a small rural clinic. *The Patient*, 3(1), 5.
- Street R. L. (2003). Communication in medical encounters: An ecological perspective. *Handbook of Health Communication.*, 63–89.

- Street, R. L., & De Haes, H. C. J. M. (2013). Designing a curriculum for communication skills training from a theory and evidence-based perspective. *Patient Education and Counseling*, 93(1), 27–33. <https://doi.org/10.1016/j.pec.2013.06.012>
- Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's alpha. *International journal of medical education*, 2, 53–55. <https://doi.org/10.5116/ijme.4dfb.8dfd>
- Walsh, M. N., Bove, A. A., Cross, R. R., Ferdinand, K. C., Forman, D. E., Freeman, A. M., Hughes, S., Klodas, E., Koplan, M., Lewis, W. R., MacDonnell, B., May, D. C., Messer, J. V., Pressler, S. J., Sanz, M. L., Spertus, J. A., Spinler, S. A., Evan Teichholz, L., Wong, J. B., & Doermann Byrd, K. (2012). ACCF 2012 Health Policy Statement on Patient-Centered Care in Cardiovascular Medicine. *Journal of the American College of Cardiology*, 59(23), 2125–2143. <https://doi.org/10.1016/j.jacc.2012.03.016>
- Wasserman, R. C., Inui, T. S., Barriatua, R. D., Carter, W. B., & Lippincott, P. (1984). Pediatric clinicians' support for parents makes a difference: An outcome-based analysis of clinician-parent interaction. *Pediatrics*, 74(6), 1047–1053. <https://doi.org/10.1542/peds.74.6.1047>
- Wu, Q., Jin, Z., & Wang, P. (2022). The relationship between the physician-patient relationship, physician empathy, and patient trust. *Journal of General Internal Medicine*, 37(6), 1388–1393. <https://doi.org/10.1007/s11606-021-07008-9>

Appendix A
IRB Approval Letter



EAST CAROLINA UNIVERSITY
University & Medical Center Institutional Review Board
4N-64 Brody Medical Sciences Building · Mail Stop 682
600 Moye Boulevard · Greenville, NC 27834
Office 252-744-2914 · Fax 252-744-2284
rede.ecu.edu/umcirb/

Notification of Amendment Approval

From: Biomedical IRB
To: [Zachary Force](#)
CC: [Samuel Sears](#)
Date: 4/12/2023
Re: [Ame2_UMCIRB 22-001932](#)
[UMCIRB 22-001932](#)
Impact of a Medical Team Program on Patient Experience in Cardiology: A Feasibility Study

Your Amendment has been reviewed and approved using expedited review on 4/11/2023. It was the determination of the UMCIRB Chairperson (or designee) that this revision does not impact the overall risk/benefit ratio of the study and is appropriate for the population and procedures proposed.

Please note that any further changes to this approved research may not be initiated without UMCIRB review except when necessary to eliminate an apparent immediate hazard to the participant. All unanticipated problems involving risks to participants and others must be promptly reported to the UMCIRB. The investigator must adhere to all reporting requirements for this study.

If applicable, approved consent documents with the IRB approval date stamped on the document should be used to consent participants (consent documents with the IRB approval date stamp are found under the Documents tab in the study workspace).

The approval includes the following items:

Document	Description
Adding Helena Sousa to the study team.	

For research studies where a waiver or alteration of HIPAA Authorization has been approved, the IRB states that each of the waiver criteria in 45 CFR 164.512(i)(1)(i)(A) and (2)(i) through (v) have been met. Additionally, the elements of PHI to be collected as described in items 1 and 2 of the Application for Waiver of Authorization have been determined to be the minimal necessary for the specified research.

The Chairperson (or designee) does not have a potential for conflict of interest on this study.

Appendix B

Intervention Biography

Sample Provider Biography

Personal

About my family:

- My parents live in India. I have one older sister who lives close by in Charlotte and one niece! I would like to have a dog one day.

What are your hobbies?

- Painting, music, yoga, traveling, reading books

What do you do for exercise?

- I walk, go to the gym, hike, do yoga or play badminton

What is your Favorite music?

- Pop, rock, alternative rock. Artists like Coldplay, U2, Plain White T's, Florida Georgia Line, Blake Shelton, Kygo, Oasis, Sia, James Bay, Prateek Kuhad... the list can go on!

A fun fact:

- I was pretty good at javelin during medical school!

Why do I like North Carolina?

- The weather is warm and so are the people ☺. My family is here, and I love that NC has mountains and the ocean!

Favorite Greenville restaurant?

- Luna's Pizza Café

Dr. Zeba Hashmath, MD



Cardiology Fellow
Department of Cardiovascular Sciences
East Carolina University

Education & Experience

Rangaraya Medical College, India

Residency: Saint Vincent Hospital in Worcester, Massachusetts

Professional

Why did I get into medicine?

- To help and heal people's ailments and make their life better. To make a difference in people's lives.

What are my views towards care?

- To work as a *team* towards making you healthier and stronger. We are in this together.

How would I describe my job?

- I am your first contact for any cardiac issues. An internal medicine physician with specialized training in cardiology.

What conditions do I commonly see?

- Coronary artery disease, atrial fibrillation, heart failure, valvular heart disease, cardiomyopathy, patients with pacemakers and defibrillators,

Why do I like Cardiology and ECHI?

- I love Cardiology because it is cerebral, versatile, and fun to learn.
- ECHI is an organized and efficient clinic with excellent staff members who are a blessing to work with.

What are your Career Goals?

- Academic general cardiology and Electrophysiology

How do patients describe me?

- Competent, compassionate, thorough/detail-oriented, reliable, empathetic/good listener

The Building

About ECHI:

- ECHI is a 225,000 square foot, four floor, cardiovascular clinical and research facility and weighs 675 tons.
- ECHI opened in November 2008
- ECHI contains offices, research labs, exam rooms, patient education rooms, a rehabilitation center, and a 250-seat auditorium.

Areas served:

- 29 counties in rural North Carolina

Treatment and technologies:

- Medical and Interventional Cardiology
- Vascular Surgery
- Cardiothoracic Surgery
- Cardiac Electrophysiology
- Cardiovascular & Pulmonary Rehabilitation
- Thoracic & Foregut Services

Accreditations:

- Chest Pain Center
- LVAD Destination Center
- American Association of Cardiovascular and Pulmonary Rehabilitation (AACVPR)
- Magnet designation
- Level-1 Trauma Center
- Echocardiography (IAC)

East Carolina Heart Institute (ECHI)



Department of Cardiovascular Sciences
East Carolina University

115 Heart Drive
Greenville, NC 27834

Phone
252-744-4400

Hours
Monday – Friday, 8 a.m. – 5 p.m.

Care We Provide

ECHI is part of ECU Health which is committed to providing comprehensive heart and vascular care to the people of eastern North Carolina.

ECU Health's network of care includes internationally recognized physicians, the most up-to-date technologies, and advanced care services.

We treat your heart "with heart" – and with passion – because we know it's the center of who you are as a person. And we start at the beginning, with a strong focus on education, prevention and screenings. If there is a problem, we offer a precise diagnosis and timely interventions.

Here, you'll find expert care, whether you need help managing a chronic disease like high blood pressure or life-saving treatment in an emergency. If you're recovering from a heart attack or related condition or surgery, we also offer a comprehensive cardiovascular rehabilitation program at multiple locations throughout eastern North Carolina.

Appendix D

Construction of Provider Biography

The following list is based on what patients believe would be beneficial to know about their providers. To preserve provider privacy, all questions are optional, allowing everyone to highlight relevant details of their life while staying within your comfort. We welcome feedback or concerns about other items.

Professional

- 1) Where did you attend school, residency etc.?
- 2) Other work experience
- 3) Credentials and explanation of what you do
- 4) Specialty
- 5) Years in practice/experience
- 6) What do you like about cardiology?
- 7) Career goals
- 8) Common conditions you see in clinic
- 9) What do you like about ECHI?
- 10) My patients describe me as compassionate.
- 11) Awards

Personal

- 1) Hobbies/interests
- 2) View towards how you provide medicine (Philosophy of care)
- 3) Initial reason for pursuing medicine
- 4) Family information (other family members, children, siblings etc.)
- 5) Home area (can skip or be as vague as you would like)
- 6) Marital status (can skip or be as vague as you would like)
- 7) General lifestyle habits
- 8) Exercise preferences
- 9) Pets
- 10) Health information (can skip or be as vague as you would like)
- 11) Personal experience with disease (can skip or be as vague as you would like)
- 12) Religion (can skip or be as vague as you would like)
- 13) Fun fact
- 14) Personal goals
- 15) Favorite place in North Carolina
- 16) Favorite restaurant in Greenville
- 17) Favorite cuisine
- 18) Favorite music
- 19) What do you like about living in North Carolina?

Appendix E

Patient-Professional Interaction Questionnaire

The PPIQ reports 16 common ways of dealing with patients in the hospital setting. Please, think about the healthcare professional or one of the professionals you have just encountered, and rate how he/she behaved with you as a patient in accordance with each statement using a 5-point scale from 1 = “not at all” to 5 = “very much”.

Please, report here the professional qualification of the chosen clinician

Was it your first encounter with this clinician? Yes No.

1 He/she provided me with clear information.

2 He/she was interested in what I feel about my current health status.

3 He/she turned to me in a calm and quiet tone.

4 He/she understood my emotions.

5 He/she was interested in what I know about my disease/ prognosis.

6 He/she respected me as a person.

7 He/she was interested in what I want from care.

8 He/she was able to listen.

9 He/she paid attention to what I was saying.

10 He/she was able to put him/herself in “my shoes”.

11 He/she gave me time to ask and to talk about the disease.

12 He/she inspired confidence and security when touching me and being nearby.

13 He/she asked questions that allowed me to express my view.

14 He/she was interested in what I expect from care.

15 He/she gave me encouragement and transmitted optimism.

16 He/she offered me the opportunity to discuss and decide together the “things to do”.

Appendix F

Patient-Doctor Depth of Relationship scale

1.1 **Did you see your usual or regular doctor today?**

No ₀
 Yes ₁
 Not sure ₂

Thinking about the doctor you have just seen, please answer the following questions as honestly as possible by ticking the box that best fits with your opinion.

	Disagree	Neither agree nor disagree	Slightly agree	Mostly agree	Totally agree
2.1 I know this doctor very well	<input type="checkbox"/> ₀	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
<hr/>					
2.2 This doctor knows me as a person	<input type="checkbox"/> ₀	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
<hr/>					
2.3 This doctor really knows how I feel about things	<input type="checkbox"/> ₀	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
<hr/>					
2.4 I know what to expect with this doctor	<input type="checkbox"/> ₀	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
<hr/>					
2.5 This doctor really cares for me	<input type="checkbox"/> ₀	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
<hr/>					
2.6 This doctor takes me seriously	<input type="checkbox"/> ₀	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
<hr/>					
2.7 This doctor accepts me the way I am	<input type="checkbox"/> ₀	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
<hr/>					
2.8 I feel totally relaxed with this doctor	<input type="checkbox"/> ₀	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
<hr/>					

Appendix G
Sprinkles Survey

Age: ____ **Gender:** M F

How well do you feel that you know your primary provider? (as an individual i.e. about his life outside of work)

1- none 2- somewhat 3- fairly well 4- very well

How important is knowing about your provider's life outside of work to YOU as a patient?

1- not at all important 2- somewhat important 3- very important 4- essential

I believe that a better relationship with my healthcare provider would lead to higher quality medical care

1- does not describe me 2- somewhat describes me 3- describes me well
4- describes me very well

The more I know about my healthcare provider the more comfortable I feel with them

1- does not describe me 2- somewhat describes me 3- describes me well
4- describes me very well

The more I know about my healthcare provider, the more I trust them

1- does not describe me 2- somewhat describes me 3- describes me well
4- describes me very well

I have considered asking my care provider, either at this office or another, some personal detail of their life but decided not to because I felt uncomfortable doing so.

1- does not describe me 2- somewhat describes me 3- describes me well
4- describes me very well

I would like to know my Care Provider better

1- does not describe me 2- somewhat describes me 3- describes me well
4- describes me very well

The thought "my provider knows much more about me than I do about them" has crossed my mind prior to taking this survey

1- never 2- a couple times 3- several times 4- very often

Please list any and all topics that you feel would be beneficial for a patient to know about their medical provider (ex Family, Hobbies, Beliefs etc.):

Appendix H
Provider Measure

Name_____

Date_____

Provider Questions

After the consultation, please answer the following questions related to your last visit

1. Did the patient ask any question?
 - a. Yes
 - b. No
2. What kind of questions did they ask? (select all that apply)
 - a. Prognosis
 - b. Logistics (e.g., when is their next appointment)
 - c. Etiology
 - d. Diagnosis
 - e. Course/change
3. Did the patient engage in discussion about information in your biography?
 - a. Yes
 - b. No

Please rate the following items as they relate to yourself. Please use the following scale:

1-strongly disagree 2-disagree 3-neither agree nor disagree 4-agree 5-strongly disagree

- | | |
|--|-----------|
| 4. The provider biography was beneficial to the medical visit. | 1 2 3 4 5 |
| 5. The questionnaire was easy to use. | 1 2 3 4 5 |