Winter 12-18-2020

Trust in the Nurse and Perceived Quality Nursing Care by Adult Oncology Patients with Implantable Vascular Access Port Devices: A Mixed Methods Study

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TRUST IN THE NURSE AND PERCEIVED QUALITY NURSING CARE BY ADULT ONCOLOGY PATIENTS WITH IMPLANTABLE VASCULAR ACCESS PORT DEVICES: A MIXED METHODS STUDY

A Dissertation

Submitted to the School of Nursing

Duquesne University

In partial fulfillment of the requirements for

the degree of Doctor of Philosophy

By

Lois Rajcan

December 2020

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Approved July 8, 2020

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ABSTRACT

TRUST IN THE NURSE AND PERCEIVED QUALITY NURSING CARE BY ADULT ONCOLOGY PATIENTS WITH IMPLANTABLE VASCULAR ACCESS PORT DEVICES: A MIXED METHODS STUDY

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Dissertation supervised by Dr. Joan Such Lockhart

Objective: The purpose of this study was to obtain an understanding of nurse behaviors that promote trust and quality nursing care as perceived by oncology patients with totally implantable vascular access devices (TIVAD).

Methods: An explanatory sequential mixed-method design was used to answer the study questions. This design was comprised of two phases: 1) a quantitative online survey of oncology patients with TIVADs followed by; 2) qualitative interviews using purposively selected patients from the survey sample.

Results: Trust in the nurse and perceived quality of nursing care by patients with TIVADs were determined to be of average levels. Two qualitative themes were identified as reflecting patient-centered nurse behaviors that facilitate patient-nurse trust and

perceived level of quality nursing care: (1) nurse attributes that facilitate patient trust in the nurse; and (2) patient perceptions of quality nursing care.

Conclusion: Study findings suggest the importance of combining psychomotor and communication skills to facilitate the level of patient trust in the nurse and perceptions of quality nursing care when nurses access and care for TIVADs. The qualitative narratives provided detailed insight beyond the current theoretical concepts of trust in the nurse as reported in current literature and will enrich the current practice of nurses by providing a basis to pursue and implement individualized care practices for oncology patients.

DEDICATION

To my husband Steve, who encourages me to dream, explore, and discover.

ACKNOWLEDGEMENT

To my family, especially my husband Steve, who was my technical computer support and kept the dogs fed during this journey. To my mother-in-law Marie, who came out of retirement to be my personal copy editor; your attention to detail was an endless inspiration. To Dr. Christine Thomas, who has been my mentor throughout my nursing career and has given me encouragement without hesitation. To David Nolfi, thank you for your expertise with the literature review. To Alex Grinev, your help with statistical analysis was a kind gift to me. To Dr. Schreiber, for supervising the statistical analysis. To Dr. Mollica, who became a member of my committee and provided direction without meeting me in person, my deepest gratitude and admiration. To Dr. Goodfellow, who retired and remained on the committee to provide support, guidance, and encouragement from her home in Costa Rica. To Dr. Lockhart, who stepped in to be the chair of the committee when Dr. Goodfellow retired, a huge thank you. Lastly, to the cancer survivors who completed the online survey and interviews, I thank you for sharing your life with me.

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LIST OF ABBREVIATIONS

OPPQNCS = Oncology Patients' Perception of Quality Nursing Care Scale

PRISMA = Preferred Reporting Items for Systematic Reviews and Meta-Analyses

QR Code = Quick Response Code containing URL on the World Wide Web

TINS = Trust in Nurses Scale

TIVAD = Totally Implantable Vascular Access Device

URL = Uniform Resource Locator on the World Wide Web

INTEGRATIVE REVIEW OF THE LITERATURE

Manuscript #1

Generating Oncology Patient Trust in the Nurse: An Integrative Review

Rajcan, L., Lockhart, J. S., & Goodfellow, L. (2020). Generating oncology patient trust in the nurse: An integrative review. *Western Journal of Nursing Research.* Advance online publication June 4, 2020. https://doi.org/10.1177/0193945920930337

Abstract

An integrative review was conducted to evaluate the extent and quality of literature regarding adult oncology patients' trust in nurses. Nineteen studies met the inclusion criteria. Three themes were identified, which are as follows: nurse trust facilitating behaviors, nurse attributes, and the influence of patient-nurse trust on health and psychosocial well-being. Findings indicate that the extent of literature is limited in specific examples of nurse interventions that facilitate interpersonal patient nurse trust. Future research should include more detailed nurse actions and attributes that build patient-nurse trust to fully understand the benefits of trust in oncology patients.

Keywords

oncology patient, trust in the nurse, patient-nurse relationship, nursing interventions, integrative review, interpersonal trust in the nurse

Generating Oncology Patient Trust in the Nurse: An Integrative Review

Establishing trust is the foundation of all interpersonal relationships and is vitally important when developing therapeutic relationships in nursing (Halldorsdottir & Hamrin, 1997; Pask, 1995; Robinson, 2016). Although trust is not readily visible, it is important for the patient-nurse relationship to be successful (Johns, 1996; Murray & McCrone, 2015). Trust in the nurse is influenced by patients' experiences, expectations, and encounters with the health care system (Dinc & Gastmans, 2012; Sellman, 2007). The inclusion or exclusion of family members during encounters with nurses also influences trust in the nurse,as family members are often primary caregivers (Robinson, 2016). As identified by Dinc and Gastmans (2013), trust in the nurse is a process that develops over time during consistent interactions with the nurse and can be either strengthened or diminished. Trust in the nurse is fragile and once it is lost it is not easily regained; thus, patient trust in the nurse, once obtained, must be maintained (Bell & Duffy, 2009). Many definitions regarding trust have been identified. Trust can be categorized as institutional or interpersonal (Gilson, 2006; Radwin & Alster, 1999). Institutional trust is between a patient and health care organization such as a hospital (Gilson, 2006). Interpersonal trust is between two individuals such as a patient and nurse (Radwin & Alster, 1999). The focus of this integrative review is the interpersonal trust between the adult oncology patient and the nurse. Definitions of interpersonal trust share a common viewpoint in that there is reliance upon a person, with the intent of goodwill, during circumstances of uncertainty and risk. Bell and Duffy (2009) defined interpersonal trust as "the optimistic acceptance of a vulnerable situation, following careful assessment, in which the trustor believes that the trustee has his best interests as paramount" (p. 50).

A specific definition of interpersonal patient–nurse trust has been conceptualized by Radwin and Alster (1999) as "the confidence that care would be appropriate, reliable and as successful as possible" (p. 332). When patients trust the nurse, they feel emotionally and physically safe, and valued as individuals (Benkert et al., 2008; Langley & Klopper, 2005). The absence of trust in the patient–nurse relationship can produce emotional anguish for the patient, leading to insecurity, vulnerability, and poor outcomes of health and wellness (Birkhauer et al., 2017; Eriksson & Nilsson, 2008; Halldorsdottir & Hamrin, 1997; Sacks & Nelson, 2007). When interpersonal patient-nurse trust exists, nurses will be effective in enabling patients to feel safe, valued, and assist them to optimal wellness.

Significance of Oncology Patient Trust in the Nurse

Cancer survivors are growing in numbers and age (Bluethmann et al., 2016). New cancer cases in the United States (US) were projected to be over 1.8 million in 2020 (American Cancer Society, 2020). With early detection, diagnosis, and treatment, cancer is now becoming a chronic illness with many phases of survivorship. Patients diagnosed with cancer have complex physical and psychosocial health care needs that require intimate care at various phases in their illness trajectory, from acute treatment to long-term monitoring. During the cancer trajectory, it is important for cancer survivors to trust nurses to provide information, treatments, and follow-up care (Oncology Nursing Society, 2019). When there is a lack of trust, accepting advice or treatment from the nurse may be problematic for patients and result in experiencing additional pain and complications (Eriksson & Nilsson, 2008). Throughout their journey, cancer survivors interact with nurses over a long period of time. This consistent interaction presents an

opportunity for nurses to facilitate interpersonal trust that is important to assist survivors in achieving optimal wellness.

Purpose and Research Questions

The primary purpose of this integrative review is to evaluate the extent and quality of literature on the construct of oncology patient trust in a nurse. A secondary purpose is to identify opportunities for future research. Specific research questions guiding this integrative review include (a) What interventions performed by nurses, as reported by adult oncology patients, facilitate patient trust in the nurse? (b)What attributes of nurses are associated with the adult oncology patient trust in the nurse? and (c) How does patient trust in the nurse influence the health and psychosocial well-being of those adults diagnosed with cancer?

Methods

Eligibility Criteria

The integrative review method of Whittemore and Knafl (2005) was used to evaluate, synthesize, and report the evidence related to patient trust in nurses within the context of adult cancer patients. This method allows the simultaneous inclusion of experimental and non-experimental research. Integrative reviews are used to define concepts, review theories, and analyze methodologies of a particular topic (Whittemore & Knafl, 2005). The use of an integrative review method is appropriate because it allows the phenomenon of oncology patient trust in the nurse to be fully explored. The steps involved in this review method include (a) identifying a problem, (b) conducting a literature search, (c) evaluating the quality of the data, (d) analyzing

the data, and (e) synthesizing the data and presenting the findings (Whittemore & Knafl, 2005).

Literature Search

An electronic search was conducted with the guidance of an experienced health sciences librarian using the three databases: Cumulative Index to Nursing and Allied Health Literature (CINAHL), PubMed, and Scopus. Search techniques utilized keywords, Medical Subject Headings (MeSH), CINAHL subject headings, truncation, nested Boolean searching, and phrase searching (when applicable). An ancestral search of the literature was conducted as an additional search technique. The searches were executed in October 2019, with results limited to the English language. The year range of 1980 to 2019 was used to capture the development of oncology patient–nurse trust over nearly four decades of oncology nursing care. Searches in PubMed and CINAHL using synonyms for trust (belief and confidence) and antonyms (mistrust and distrust) revealed a large amount of literature not related to the research questions. Therefore, the search was narrowed using the keyword "trust". Table 1 illustrates the search terms used in each database.

A total of 1201 articles were identified for screening using the search terms adapted for each database (see Figure 1). Of those articles, 528 duplicates were identified and removed using the computer software Covidence (Covidence Systematic Review Software, 2019), leaving a remainder of 760 studies to be screened against the title and abstract. Each title and abstract were screened to determine if the publication

met the following inclusion criteria (a) U.S. and international studies published in English, (b) sample population of adult oncology patients, (c) topic addressed patient trust in the nurse, and (d) published from 1980 to 2019.

Of the 760 abstracts screened, 715 were eliminated because they did not meet the inclusion criteria. The remaining 45 full-text articles were read, but 26 articles were eliminated. Of the 26 eliminated studies, 22 studies did not focus on oncology patient trust in the nurse. Of the four remaining studies about oncology patients, two studies were duplicates, in that one study was published in another journal as an extraction from a previously published MSc thesis in nursing, and one article was a recent reprint of a previously published article. A third publication was an opinion letter to the editor responding to a previously published article in the journal and reflected the viewpoint of the author about patient–nurse trust. The fourth publication was a single paragraph in a textbook. An ancestry search was also done by reviewing the reference lists of the 19 remaining studies; however, this approach did not yield further articles (see Figure 1).

Data Evaluation

The data evaluation stage of this review involved reviewing the quality of the 19 sample studies using quality criteria appraisal tools. Qualitative studies (n=11) were evaluated using the Qualitative Findings Critical Appraisal Scale (Pearson, 2004); quantitative studies (n=5) were evaluated using the Checklist for Assessing the Validity of Descriptive/Correlational Studies (Pearson et al., 2006); and mixed method studies (n=3) were evaluated using the Mixed Methods Appraisal Tool (MMAT; Hong et al., 2018). Each quality item from the appraisal tools was scored for the presence or absence

of the quality items with a yes (1), no (0), or unclear (0). Based on the "yes" checklist scores, the studies were assigned rankings of low, medium, or high.

According to Pearson (2004), qualitative studies (n=11) were appraised for congruency between the methodology and the following: (a) the philosophical perspective; (b) research question; (c) data collection; (d) representation and analysis of data; (e) interpretation of results; (f) discussion of influence of the researcher culturally or theoretically; (g)researcher on the research (or vice-versa); (h) adequate representation of participants and their voices; (i) research was ethical; and (j) conclusions drawn from the data analysis (Pearson, 2004). The qualitative studies scored medium and high between 7 and 9 out of a possible 10.

According to Pearson et al. (2006), quantitative studies (n=5) were appraised for the following factors: (a) observational study; (b) random sample; (c) adequate sample; (d)inclusion criteria; (e) linking hypothesis to theoretical framework; (f) reporting of reliability and validity of tools used; (g) description of groups being compared; (h) appropriate statistical analysis; (i) reporting of significant statistical findings; (j) findings linked to theoretical framework; and (k)generalizability of the studies (Pearson et al., 2006). Quantitative studies reached medium to high scores ranging from 7 to 9 out of a possible 11.

According to Hong et al. (2018), mixed methods studies (n=3) were appraised using the combined screening categories of qualitative, descriptive quantitative, and mixed methods of the MMAT. MMAT qualitative category appraised for the following: (a) appropriate approach to answer the research question; (b) data collection methods were adequate to answer the research question; (c) findings were derived from the data; (d)

results substantiated by the data; and (e) coherence between data sources, collection, analysis, and interpretation. MMAT descriptive quantitative category appraised for the following: (a) sampling strategy relevant to address research question; (b) sample represents targeted population; (c) measurements were appropriate; (d) low responsive bias; (e) appropriate use of statistical analysis to answer the research question. The mixed method design category appraised for the following: (a) rationale provided for using mixed methodology; (b) effective integration of components; (c) integration of components interpreted; (d) divergences and inconsistencies addressed; and (e) adherence to quality criteria of methods involved (Hong et al., 2018). Of the mixed method sample (n=3) one was ranked as medium (13) and two studies were ranked as high (15) out of a possible total of 15. Appraisal scores for all sample studies are shown in Table 2.

Commonalities were noted in appraised deficiencies across the sample studies. The qualitative studies (n=11) lacked the identification of the researcher's cultural and theoretical orientation describing the extent to which the beliefs and values of the researcher influenced the study. None of the quantitative studies (n=5) mentioned the use of sample randomization, and therefore, they lacked generalizability in the populations under study. The mixed methods studies (n=3) did not address contradictions between the quantitative and qualitative results and lacked evidence of using quality criteria to ensure trustworthiness. Despite these deficiencies, all 19 studies were included in the review, as the purpose of the review was to determine the extent and quality of the current literature.

Data Analysis

Using a directed content analysis approach, the 19-final sample studies describing oncology patient–nurse trust were thoroughly read and re-read by the first author to obtain an overview of the content (Hsieh & Shannon, 2005). Key text in the studies describing the three research questions guiding this review were identified. Summarizing, comparing, and coding the identified key text in the 19 sample studies facilitated the grouping of data into categories based on the research questions guiding this review. This approach consisted of the following: (a) extraction of data into a matrix table based upon key elements of each study, namely, author, year, country, design/purpose, sample, and findings; (b) coding, analyzing, and comparing data from each study using the research questions; (c) identifying themes, patterns, or relationships between patient–nurse trust and mistrust, and; (d) synthesizing the data from each primary source into an integrated summation of the concept of patient–nurse trust (Whittemore & Knafl, 2005). Data were extracted by the first author and summarized into the final matrix table and labeled according to the applicability to the research questions, themes, and quality scores (see Table 2).

Results

Characteristics of the Studies

The 19 sample studies were published from 1997 to 2019, with most studies (n=12) dating between 2014 and 2019. Studies were conducted across a wide range of countries that included Belgium (n=1); Canada (n=1); Cyprus (n=3); Finland (n=4); Greece (n=3); Hong Kong (n=1); Iceland (n=1); Iran (n=2); Japan (n=1); Netherlands (n=1); Sweden (n=3); Turkey (n=1), and the United States (n=3). The study settings varied and included hospitals, inpatient hospices, outpatient treatment centers, and

personal homes. Individual study population sample sizes ranged from 8 to 599. Most of the studies (n=17) were

descriptive designs that focused on the construct of patient–nurse trust and its meaning to oncology patients. Theory-generating studies (n= 2) demonstrated the importance of nursing interventions in the oncology population that promoted trust in the patient–nurse relationship (Charalambous et al., 2016; Radwin et al.,2009). Six studies focused on a specific cancer diagnosis: breast (n=3), colorectal (n=1), lung (n=1), and prostate (n=1) (Bando et al., 2018; Holopainen et al., 2014; Jakobsson & Holmberg, 2011; Koinberg et al.,2002; Montpetit & Singh-Carlson, 2018; Tuominen et al., 2019).

Synthesis of Results

Once the information was extracted from the 19 studies using the research questions, data were reduced and grouped into three themes: (a) nurse trust facilitating behaviors; (b) nurse attributes; and (c) influence of trust on the patient's health and psychosocial wellbeing. Nine of the 19 studies addressed more than one research question and were grouped into more than one theme (Charalambous et al., 2016; Daem et al.,2019; Halldorsdottir & Hamrin, 1997; Mok & Chiu, 2004; Montpetit & Singh-Carlson, 2018; Ozaras & Abaan, 2018; Radwin et al., 2009; Tuominen et al., 2019; van Dusseldorp et al., 2019). Including the studies grouped into more than one theme, nine reflected nurse trust facilitating behaviors, 10 reflected nurse attributes, and 11 reflected the theme of health and psychosocial wellbeing. Table 2 identifies the grouping of studies into themes. These themes as they related to the research questions, will be explained in the following sections.

Nurse Trust Facilitating Behaviors. Nine of the 19 studies answered research question one and reflected the theme of nurse trust facilitating behaviors (Azimzadeh et al. 2013; Charalambous et al., 2014, 2016; Halldorsdottir & Hamrin,1997; Montpetit & Singh-Carlson, 2018; Mok & Chiu, 2004; Ozaras & Abaan, 2018; Radwin et al., 2009; Tuominen et al., 2019). Patients have an expectation to be cared for by a nurse who is proficient in skills to facilitate patient wellness (Tuominen et al.,2019). Charalambous and colleagues (2016) identified that trust in the nurse by the hospitalized oncology patient is established when nursing interventions are focused on patient individuality, quality nursing care, and patient health promotion. The longer the patient with cancer is hospitalized, the higher the level of interpersonal trust in the nurse is reported (Charalambous et al., 2014). Trust in the nurse is validated the more times the oncology patient observes and experiences the actions of the nurse. Actions such as responding in a timely manner to patient requests, demonstrating proficient skills, monitoring patients, and following through with nursing tasks instills trust in the nurse (Radwin et al., 2009). Using patient interviews, Halldorsdottir and Hamrin (1997) determined that nurse caring actions were demonstrated as a skill set when performing nursing duties. Patient narratives reported by Ozaras and Abaan (2018) ascertained that a nurse's skill set influences the level of patient trust in the nurse. These skill sets include caring for vascular access lines, managing infusions, and relieving pain (Ozaras & Abaan, 2018). Montpetit and Singh-Carlson (2018) concluded that the nurse action of following up with a phone call to assess patient skin irritation after receiving radiation treatment encouraged trust in the nurse. Actions by the nurse were more meaningful than words, as reported in a qualitative study by Charalambous and colleagues (2014).

Nurse interventions in the form of prudent actions and proficient skills contribute to patient–nurse trust. In comparison, nurse behaviors perceived by the patient as careless or non-supportive result in feelings of distrust (Halldorsdottir & Hamrin, 1997; Ozaras & Abaan, 2018).

As noted in different countries, feelings and words do not always facilitate trust in the nurse–patient relationship. An Iranian study by Azimzadeh and colleagues (2013) noted that monitoring and following through with nursing actions were viewed by oncology patients as more important than experiencing a feeling of trust in the patient–nurse relationship. As per a study by Mok and Chiu (2004), nurse actions, rather than words, promote trust in the oncology hospice patient. This finding was attributed to the Chinese culture where friendliness, empathy, or good feelings are not expressed in words but by actions (Mok & Chiu, 2004). A study conducted in the United States by Radwin et al. (2009) concluded that patient–centered nurse interventions resulted in an increase of the patient's optimism that cancer treatment would be effective. This optimism contributed to the patient's sense of well-being and quality of life.

Nurse Attributes. Ten of the 19 studies reflected the theme of nurse attributes to answer research question two. As identified by oncology patients, characteristics of nurses that promote trust in the nurse are competency, professional knowledge, skill, attitude, approachability, communication, and honesty (Aminaie et al., 2019; Coffey, 2006; Daem et al., 2019; Halldorsdottir & Hamrin, 1997; Jakobsson & Holmberg, 2011; Mok & Chiu, 2004; Ozaras & Abaan, 2018; Radwin, 2000; Tuominen et al., 2019; van Dusseldorp et al., 2019). Competent care is frequently equated with the professional knowledge and skill of the nurse (Coffey, 2006; Halldorsdottir & Hamrin, 1997; Radwin,

2000). Patient trust is a result of the patient recognizing the nurse attributes of knowledge demonstrated by the nurse's skills. These attributes impact the internal sense of well-being and healing for the patient (Halldorsdottir & Hamrin, 1997). As reported by Halldorsdottir and Hamrin (1997) participant narratives emphasized that caring without competence is meaningless. Patients expect care from nurses who are trained, licensed, and who have attained the necessary knowledge and skill to provide safe care (Coffey, 2006; Halldorsdottir & Hamrin, 1997; Tuominen et al., 2019). As reported by Radwin (2000) patients identified skills demonstrating technical knowledge that provided evidence that nurses knew what they were doing. Technical skills of competence and knowledge were demonstrated when the nurse started intravenous lines, drew blood, maintained precautions during procedures, and monitored chemotherapy infusions (Radwin, 2000). Conversely, when patients perceived that nurses lacked knowledge and skill regarding their health condition, patients reported distrust of nurses and were doubtful about the relevancy and accuracy of the information provided by the nurse (Aminaie et al., 2019). Radwin (2000) also reported that experiential knowledge of the nurse promotes patient–nurse trust. Expression of prior applicable experience provided evidence that nurses knew how to apply the appropriate care. Patients diagnosed with cancer experienced a sense of optimism when nurses shared experiential knowledge gained from caring for other patients with similar experiences. Knowing that prior patients had successfully completed the same course of treatment provided hope for their own treatment and recovery (Radwin, 2000).

Another critical attribute in nurses that facilitates patient–nurse trust is a positive nurse attitude. In a study that included patients diagnosed with prostate cancer (n=11), the

attitude of the nurse as being "nice and cheerful" influenced the perception of the nurse as being confident and, therefore, trustworthy (Jakobsson & Holmberg, 2011, p. 434). Nurses who readily smile and appear gracious are also perceived as having positive attributes as reported by patients in a study by Ozaras and Abaan (2018). Patients developed trusting relationships with the nurse when the nurse's attitude was perceived as caring (Mok & Chiu, 2004). This caring attitude was defined by the patients as nurses being approachable and not emotionally distant (Mok & Chiu, 2004). Patient–nurse trust was established when nurses used soft voices and listened with intent to the patient's deeper feelings (Mok & Chiu, 2004).

Effective communication between patients and nurses involves consistent use of the attributes of approachability, honesty, and active listening by the nurse that are needed in order to obtain optimal patient outcomes. The approachability of the nurse to answer urgent questions from the patients was identified in a study by van Dusseldorp et al. (2019) as important in developing patient–nurse trust. Similarly, Daem et al. (2019) identified that when the patient perceives the nurse as approachable, the patient is receptive to receiving psychosocial interventions as offered by the nurse. Clinical decision-making regarding treatments requires an honest dialogue between the patient and the nurse (Radwin et al.,2009). Once patients' trust in the nurses is lost, it is not easily regained when patients perceive communication as being dishonest (Ozaras & Abaan, 2018). When nurses do not actively listen to patients' questions and concerns, patients perceive that they are rejected (Halldorsdottir & Hamrin, 1997). This perception of rejection causes distrust of the nurse and the honest communication needed to make critical clinical decisions for the patient is severed (Halldorsdottir & Hamrin, 1997).

Unhealthy outcomes result as important information shared by the patient, critical for decisions regarding treatments, is not communicated to the nurse (Halldorsdottir & Hamrin, 1997).

Influence of Patient–Nurse Trust on Health and Psychosocial Wellbeing.

Eleven studies reflected this theme that answers research question three (Bando et al., 2018; Charalambous et al., 2016; Daem et al., 2019; Holopainen et al, 2014; Koinberg et al.,2002; Mok & Chiu, 2004; Montpetit & Singh-Carlson, 2018; Radwin et al., 2009; Tuominen et al., 2019; van Dusseldorp et al., 2019; Suhonen et al., 2018). Suhonen et al. (2018) concluded that trust in the nurse is an important factor in the perception of quality nursing care. They further proposed that the perception of quality nursing care by patients may lead to positive outcomes in cancer survivorship (Suhonen et al., 2018). Charalambous and colleagues (2016) reported an association between trust in the nurse, quality nursing care, and patients' health status. Specifically, trust was generated when nurses performed patient-specific nurse interventions promoting the health status of the patient (Charalambous et al., 2016). Further association between nurse interventions and promoting health status is reported by Bando et al. (2018) who surveyed postoperative patients (N=82) in Japan who were diagnosed with lung cancer. When nurses managed and treated the post-operative physical symptoms of dyspnea, sore mouth, and chest pain, patients trusted the nurse, which in turn, provided them hope and the ability to cope with the stress of their illness (Bando et al., 2018). When breast radiation skin irritation was treated by the nurse, the women trusted the nurse with expressions of the deeper emotional stressors they were experiencing in addition to their physical symptoms (Montpetit & Singh-Carlson, 2018). The trusting relationship enabled the nurse to

provide additional resources in the management of patients 'stressors (Montpetit & Singh-Carlson, 2018). Similarly, as reported by Daem et al. (2019), when patients viewed nurses as being trustworthy, they much more readily accepted additional resources for psychosocial care.

Trusting the knowledge of the nurse provides a feeling of safety and a sense of empowerment for patients. Holopainen et al. (2014), through hermeneutic text interpretation of 49 women with breast cancer, determined that trust in the nurses' knowledge made it possible for them to feel safe in receiving chemotherapy infusions. Holopainen et al. (2014) also concluded that feelings of safety and trust enabled women to feel that life was bearable during the time between their treatments. As per a study by van Dusseldorp et al. (2019), cancer patients felt that trust in the nurse provided them with feelings of safety and inner peace. Narratives by hospice patients in the study by Mok and Chiu (2004) indicated that trust in the nurse allowed patients to share their feelings of the most intimate, deepest pain and suffering (Mok & Chiu, 2004). Sharing these feelings with a trusted nurse eased patients' suffering and equipped them with energy to contend with their illness (Mok & Chiu,2004). Similarly, Tuominen et al. (2019) reported, in their qualitative narratives of colon-rectal cancer patients, that talking to a nurse who was listening eased the burden of their illness. During the disease management phase of their illness, patients who trust the nurse obtained important diagnostic and follow-up care. Koinberg et al. (2002) established that when breast cancer patients (N=19) were satisfied with the care of a knowledgeable and professional nurse, they accessed follow-up services such as mammograms and doctor appointments.

Discussion

The available studies on oncology patient–nurse trust, were found to be descriptive, theory-generating, and of good quality. The concept of oncology patient–nurse trust is undeniably complex, as nine of the 19 reviewed studies were categorized by more than one theme, indicating the integral relationship between/among nurses' trust facilitating behaviors, nurses' attributes, and patient health and psychosocial well-being. This finding is supported by Robinson (2016) who identified the need to develop a middle range theory to offer a way of seeing the complexity of trust in health care relationships in all chronic illnesses, not just oncology. In this review, Mok and Chiu (2004) acknowledged that forming trusting relationships between the patient and the nurse is a complex interactional process and future studies are needed to provide insight into patient–nurse interactions. Adding to the complexity of these interactions, is the action or inaction of the nurse that can facilitate, maintain, or impede the fragile balance of patient trust in the nurse (Ozaras & Abaan, 2018; Jakobsson & Holmberg, 2011; Halldorsdottir & Hamrin, 1997). This suggests that knowing what facilitates trust is not enough; in fact, nurses need to understand which nursing actions enable mistrust in oncology patient–nurse relationships.

What remains unknown, are the comprehensive nurse actions, detailed nurse attributes and family roles that facilitate oncology patient–nurse trust or mistrust. As identified in this review, technical nursing skills are an opportunity to facilitate trust in the nurse (Ozaras & Abaan, 2018; Radwin, 2000; Radwin et al., 2009). Identification of specific technical nursing skills and how nurses perform these skills, is an area in which further study could inform nurses as to which skills facilitate the highest level of patient

trust. This review did not reveal the role of family members when facilitating oncology patient trust in the nurse. This paucity in the literature seems surprising as family members and significant others provide care for individuals experiencing cancer. Therefore, inclusion of the family and caregivers' warrants further investigation in their role in facilitating patient trust in the nurse. In addition, the identification of cultural or racial influences on oncology patient–nurse trust was not revealed in this review. Lastly, future research should seek clarity beyond the broad generalized theory-generating studies identified in this review (Charalambous et al., 2016; Radwin, 2000) of oncology patient–nurse trust and explore individualized patient care interventions that facilitate oncology patients' trust in the nurse. As revealed in this review, Charalambous et al. (2016) identified and developed a model of trust in nurses. These findings established that oncology patients' trust in nurses is influenced by the provision of individualized care (Charalambous et al., 2016). Further path analysis identified that generating and promoting trust requires interventions which promote nursing care quality, individuality, and patients' health status (Charalambous et al., 2016). Similarly, Radwin (2000) utilized a grounded theory to analyze oncology patients' perceptions of nursing quality care. These findings provide a foundation in which identification of specific individualized trust facilitating nursing interventions can be explored within diverse oncology settings. This review presents several limitations. Unintentional bias may have influenced the results of this study. The analysis of the articles in this review was conducted by one author. Although transparency between authors was present to minimize bias, it is possible that articles may have been synthesized inaccurately due to investigator bias. Second, the review yielded descriptive and theory-generating studies. Randomized

controlled studies or experimental designs that include detailed nurse interventions that facilitate interpersonal oncology patient–nurse trust, were not discovered. It is possible that the search methodology failed to locate all relevant studies including experimental designs related to oncology patient–nurse trust. The use of the search term "oncology" may have omitted experimental studies conducted in other populations relating to patient–nurse trust. Lastly, studies not translated to English were not included in the search methodology and, therefore, relevant studies may have been omitted.

To conclude, this integrative review confirms the availability of research related to oncology patients' trust in nurses. It reveals that facilitating interpersonal patient–nurse trust is a complex mixture of actions and attributes that influences the overall health of the oncology patient. The studies reviewed revealed the scarcity of comprehensive individualized patient care interventions that facilitate oncology patient–nurse trust in diverse contexts and settings. To further assist in the clarification of the complex oncology patient–nurse relationship, future research should focus on the patients' perspective of nursing interventions that facilitate interpersonal patient–nurse trust utilizing theoretical foundations (Charalambous et al., 2016; Radwin, 2000) identified in this review using experimental designs. Results of further research may inform the development of individualized interpersonal patient care interventions that promote trust, which may ultimately impact patient wellness. Research in identifying specific nursing care interventions that facilitate oncology patients' trust in nurses may not be limited to just the oncology population but may also provide information that can be applied to patients with other chronic illnesses.

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Table 1

Search Terms Used by Research Databases

Data Base	Search Terms	Articles Found
CINAHL	(MH “Cancer Patients” OR MH “Oncologic Nursing” OR MH “Oncologic Care” OR “cancer” OR “oncolog*”) AND (MH “Nurses+” OR MH "Nurse-Patient Relations" OR nurs*) AND (MH “Trust” or AB “trust” OR TI “trust”) Plus, limit to English	351
PubMed	(("Neoplasms"[Mesh] AND "Patients"[Mesh]) OR "Oncology Nursing"[Mesh] OR oncolog*[tiab] OR oncolog*[ot] OR cancer[tiab] OR cancer[ot]) AND ("Nurses"[Mesh] OR "Nurse-Patient Relations"[Mesh] OR nurs*[tiab] OR nurs*[ot]) AND ("Trust"[Mesh] OR trust*[tiab] OR trust*[ot]) Plus, limit to English	405
Scopus	((INDEXTERMS(Neoplasms) AND INDEXTERMS(Patients)) OR INDEXTERMS("Oncology Nursing") OR TITLE-ABS-KEY(oncolog*) OR TITLE-ABS-KEY(cancer)) AND (INDEXTERMS(Nurses) OR INDEXTERMS("Nurse-Patient Relations") OR TITLE-ABS-KEY(nurs*)) AND (INDEXTERMS(Trust) OR TITLE-ABS-KEY(trust)) Plus, limit to English	445
		TOTAL: 1201

Figure 1
PRISMA Flow Diagram of Study Selection

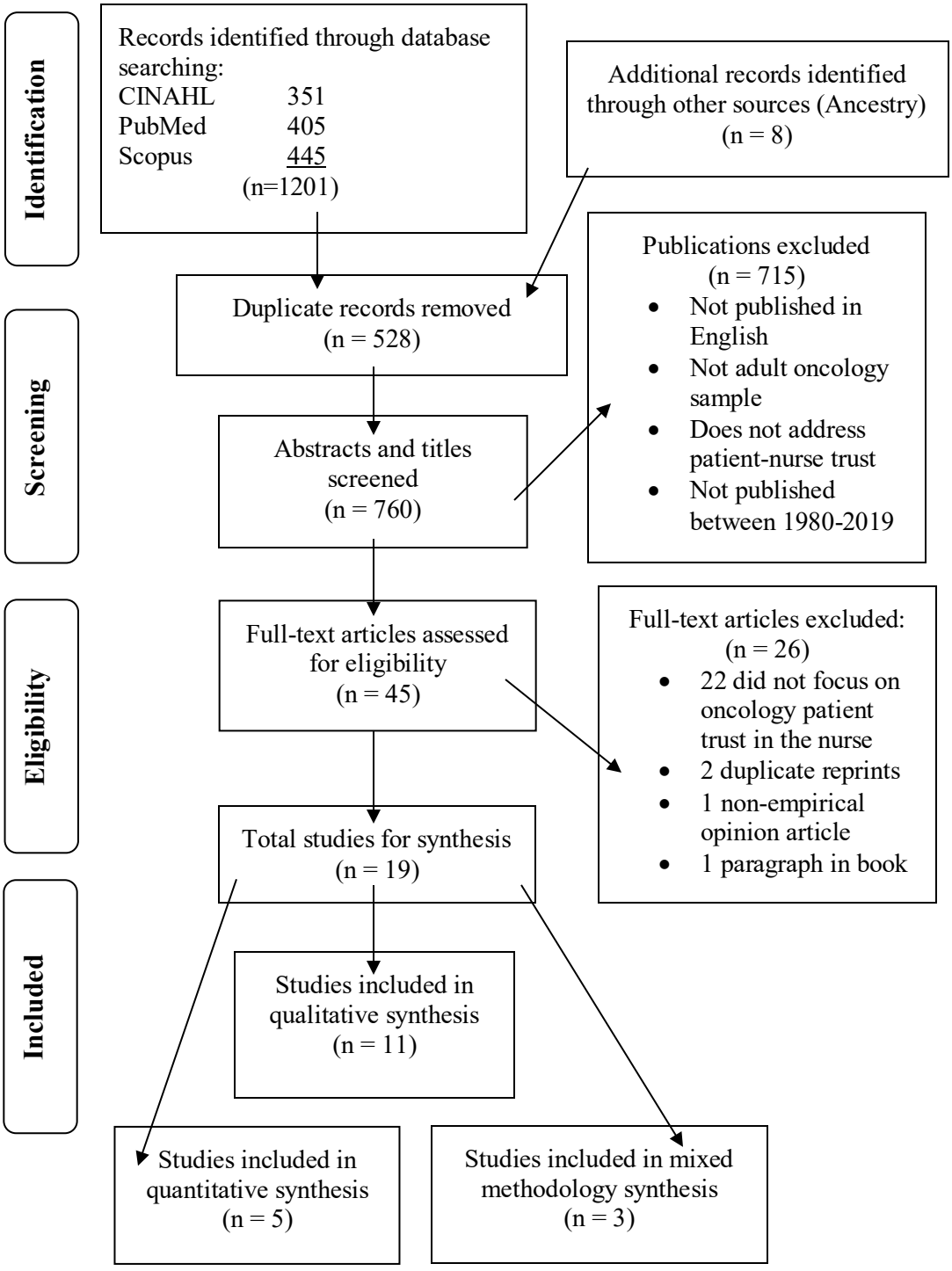

Table 2

Summary of Findings Related to Oncology Patient Trust in the Nurse (N=19)

Author(s)	Design and Purpose	Sample	Findings	Limitations	Data Evaluation
Aminaie et al. (2019)	Qualitative semi-structured interview questions with content analysis/ exploratory design To explore Iranian patients with cancer perceptions regarding their perspective in treatment decision-making.	15 cancer patients in an oncology clinic in Iran. 9-males 6-females Average age 54.6 years	Obstacles to patient-centered care included mistrust of the nurse. <u>Findings for mistrust:</u> Participants reported distrust of nurses related to the lack of providing professional care knowledge related to the patient's health condition, and lack of support.	Small convenience sample size Focus was on barriers and not positive perceptions.	RQ: 2 Theme: 2 Quality: ** 8/10=High
Azimzadeh et al. (2013)	Quantitative/Descriptive To assess what nursing interventions are important for patient-centered care in cancer wards by measuring patients' perception toward the importance of caring behaviors.	200 patients with cancer hospitalized in cancer wards in Iran 97-male 103-female Mean age 44.7 years	<u>Findings for trust</u>: Most important perceived nurse caring behaviors: monitoring, following through, and being accessible. Least important perceived nurse caring behaviors: actual trusting relationship	Convenience sampling Lengthy questionnaire at 57 questions causing questionnaire fatigue	RQ:1 Theme: 1 Quality: * 8/11=High

Table 2 continued

Author(s)	Design and Purpose	Sample	Findings	Limitations	Data Evaluation
Bando et al. (2018)	Quantitative/Descriptive To identify the factors affecting hope in order to develop a care-oriented perspective that focuses on the levels of hope of postoperative patients with lung cancer	82 patients with lung cancer in Japan who are 3-6 months postoperative 52-male 37-female Mean age 66 years	<u>Findings for trust</u>: Trust in the nurses was established when managing symptoms during recovery and treatment. This influenced hope as a way of coping with illness.	Study conducted in a limited geographical region. Used a single cross-sectional design that may have influenced results.	RQ: 3 Theme: 3 Quality: ** 8/11=High
Charalambous et al. (2014)	Explanatory Mixed-Method/Descriptive To assess and compare perceived patient satisfaction with nursing care in 2 European countries	498 patients in 5 oncology settings: 3 hospitals from Cyprus and 2 from Greece 200-Cyprus 105-male 95-female 298-Greece 133-Male 165-Female Interviews 4-male 7-female	<u>Findings for trust:</u> Trust in the nurse related to patient satisfaction with nursing care.	Cross-sectional design which does not inform about causation.	RQ:1 Theme: 1 Quality: *** 14/15= High

Table 2 continued

Author(s)	Design and Purpose	Sample	Findings	Limitations	Data Evaluation
Charalambous et al. (2016)	Quantitative/Cross-Sectional/Exploratory and Correlational Path Analysis To empirically test a model of association linking hospitalized cancer patients' health status, nursing care quality, perceived individuality, and trust in the nurse	Multi-site in cancer care clinics, inpatient wards of 5 hospitals in Cyprus, Finland, Greece, and Sweden 590 participants	<u>Findings for trust</u>: A model of trust in nurses was developed. Trust in nurses is influenced by the provision of individualized care. Generating and promoting trust requires interventions which promote nursing care quality, individuality, and patients' health status.	Hypothesized model was not supported by path analysis statistical methods. Modified model, although not as parsimonious, supports a reciprocal association between individualized nursing care and quality nursing care.	RQ: 1,3 Theme: 1;3 Quality: ** 9/11=High
Coffey (2006)	Qualitative/Descriptive Concept Analysis Multi-phase/Multi-method/Retroductive To explore the concept of the nurse-patient covenant	Literature 167 references Focus Groups of Nurses: 2 groups totaling 12 nurses Interviews with 8 cancer patients	<u>Findings for trust</u>: A covenant in the nurse-patient relationship is defined as an enduring relationship, embodying caring benevolence. It is preceded by the demonstration of nursing competence and leads to patients' trusting and entrusting nurses.	Data collection took place at one site. Term "covenant" is not used commonly in nursing literature and needs further defining.	RQ:2 Theme: 2 Quality: ** 8/10=Medium

Table 2 continued

Author(s)	Design and Purpose	Sample	Findings	Limitations	Data Evaluation
Daem et al. (2019)	Qualitative/grounded theory Semi-structured interviews Examine when patients with cancer experience quality psychosocial care and to identify circumstances in collaboration that contribute to patient-perceived positive psychosocial care.	2 large university hospitals and 2 private hospitals in Belgium. 13 Cancer patients 31 Health care workers: 12-nurses 2-social Workers 3-physicians 4-psychologists 2-clergy 2-palliative 6-specialists	<u>Findings for trust:</u> When nurses are perceived as approachable and trustworthy, this perception provides a significant opportunity for the nurse to bring psychosocial interventions to cancer patients.	Reluctance of healthcare workers to express negative comments regarding collaboration with other team members for psychosocial cancer care. Healthcare workers interviews may lack validity as a result.	RQ: 2,3 Theme: 2; 3 Quality: ** 8/10=High
Halldorsdottir & Hamrin (1997)	Qualitative/Descriptive Phenomenology/Thematic Analysis Interviews To explore caring and uncaring encounters with nurses from the oncology patient perspective	Patients in the recovering phase of cancer 4-male 5-female Ages 41-72 years	<u>Findings for trust:</u> Performs nursing duties with skill and competence. Perceived competence and caring resulted in patients' trusting the nurse.	Data collected from only one population setting	RQ: 1,2 Theme: 1; 2 Quality: ** 7/10=Medium

Table 2 continued

Author(s)	Design and Purpose	Sample	Findings	Limitations	Data Evaluation
Halldorsdottir & Hamrin (1997) (*continued)*			<u>Findings for mistrust:</u> Uncaring encounters resulted in mistrust. Uncaring nurse behaviors are devastating to patients and raise the question whether these behaviors should be viewed as unethical or as malpractice.		
Holopainen et al. (2014)	Qualitative/Descriptive Phenomenological hermeneutics text interpretation using questionnaires. To gain a deeper understanding of the prerequisites for and the meaning of the caring encounter of women with breast cancer.	Breast cancer follow-up visits at an oncology clinic 49 women with breast cancer	<u>Findings for trust</u>: Trust in the caregivers' expert knowledge allows women to feel safe in surrendering their bodies to healthcare providers. Feeling safe and trusting the nurse causes women to feel that life is bearable between treatments.	Questionnaires lacked psychometric testing.	RQ:3 Theme: 3 Quality: ** 8/10=High

Table 2 continued

Author(s)	Design and Purpose	Sample	Findings	Limitations	Data Evaluation
Jakobsson & Holmberg (2011)	Qualitative/Descriptive To study patients' attitudes toward nurses, investigate what hampering factors occur in the actual nursing situation, and what patient features might affect cooperative climates	11 male inpatients with prostate cancer admitted to a urologic hospital ward in Sweden Mean age 74 years	<u>Findings for mistrust</u>: Lack of trust in the nurse hampers communication between the nurse and patient.	Only male population interviewed. One type of cancer diagnosis.	RQ:2 Theme: 2 Quality: ** 7/10=Medium
Koinberg et al (2002)	Qualitative/Descriptive Phenomenographic analysis To describe breast cancer patients' satisfaction with spontaneous system of check-up visits to a specialist nurse	Strategic sample of 19 women post-stage I or post-stage II breast cancer surgery Mean age 63 years	<u>Findings for trust:</u> Trust in having a continuity of a nurse relationship to talk to about concerns and follow-up care and provide support for medical questions. Confirmation and trust were important and necessary for women with breast cancer to feel secure with healthcare provider.	Only female population interviews. One type of cancer diagnosis.	RQ:3 Theme: 3 Quality: ** 8/10=High

Table 2 continued

Author(s)	Design and Purpose	Sample	Findings	Limitations	Data Evaluation
Mok & Chiu (2004)	Qualitative/Descriptive Phenomenological analysis To report aspects of nurse-patient relationships in context of palliative care	Inpatient or home care palliative care in Hong Kong, China Interview: 10-hospice nurses 10-terminally ill patients 6-male 4-female Nurses age 24-40 Mean age 33.3 Mean experience 6.2 years Patients age 40-78 years Mean age 62.9 years	<u>Findings for trust</u>: Nurse-patient relationship evolved into a trusting connected relationship when patients found nurses were caring in both action and attitude with an outcome as being "part of the family." How trust is formed: caring actions and caring attitudes Outcome of trust: Trusting relationship provides inner strength to patients to keep living.	Population primarily palliative care. Other interactions with nurses with patients with other diagnosis may uncover different aspects of the nurse-patient relationship.	RQ: 1,2,3 Theme: 1; 2; 3 Quality: ** 8/10=High

Table 2 continued

Author(s)	Design and Purpose	Sample	Findings	Limitations	Data Evaluation
Montpetit & Singh-Carlson (2018)	Quantitative/Qualitative /Descriptive / Quality evaluation project To evaluate the use of InterDry Ag dressing in relieving discomfort of skin reactions for breast cancer patients undergoing radiation treatment.	20 women with breast cancer being treated with radiation in Canada Average age 42 years	<u>Findings for trust:</u> Weekly skin assessments by the nurse fostered a trusting relationship between the patient and the nurse that in turn encouraged patients to self-manage their own care.	Did not utilize validated data collection tools. Small sample size Lacked diversity of ethnicity in skin types.	RQ: 1,3 Theme: 1; 3 Quality: *** 13/15-Medium
Ozaras & Abaan (2018)	Cross-Sectional Quantitative questionnaire with section for written free text to predetermined questions Thematic analysis of written patient responses To examine the patients' views on the trust status toward nurses and the factors important for the development of trust in the nurse-patient relationship	356 hospitalized oncology patients in Turkey 176-male 180-female	<u>Findings for trust:</u> Personal and professional characteristics, such as performing tasks with competence and skill <u>Findings for mistrust:</u> Mistreatment, professional incapability, and communication problems such as telling a lie	Data collected from one setting and population.	RQ: 1,2 Theme: 1; 2 Quality: *** 14/15 - High

Table 2 continued

Author(s)	Design and Purpose	Sample	Findings	Limitations	Data Evaluation
Radwin (2000)	Qualitative/Descriptive Grounded theory Semi-structured interview questions Data was analyzed using constant comparison, and selective coding procedures. To analyze theoretically oncology patients' perception of the attributes of quality nursing care To identify, describe, and analyze theoretically the construct of quality nursing care	Purposeful sample 22 oncology patients in the USA 7-male 15-female Ages 27-82 years	<u>Findings for trust</u>: Trust is an outcome of quality nursing care.	Grounded theory and not generalizable to population.	RQ: 2 Theme: 2 Quality: ** 8/10=High
Radwin et al. (2009)	Quantitative/Correlational Non-experimental/ Longitudinal/Prospective Structural modeling	173 hematologic oncology patients in the USA 49 nurses	<u>Findings for trust:</u> Trust-inspiring aspects of care include nurses' proficiency and responsiveness	Based on a small sample of 173 patients Data-driven process for model development	RQ: 1,3 Theme: 1; 3 Quality: * 9/11=High

Table 2 continued

Author(s)	Design and Purpose	Sample	Findings	Limitations	Data Evaluation
Radwin et al. (2009) (*continued)*	To investigate the relationship between patient-centered nursing interventions, desired health outcomes, health care system characteristics, and patient characteristics	Patients mean age 58.3 years and 52% male Nurses mean age 40.2 years			
Suhonen et al. (2018)	Quantitative/ Cross sectional multicultural comparative survey design To explore the associations between patients' gender, education, health status in relation to assessments of patient-centered quality and individuality in care and trust in nurses Develop a deeper understanding if, and in what way, age relates to patients' assessments of care quality attributes.	Hospitalized cancer inpatients In four European countries: 150-Cyprus 158-Finland 150-Greece 141-Sweden ≥ 65 years 66% male <65 years 47% male 53% female	Trust in nurses scale was used as an indicator for the delivery of patient-centered quality nursing care. Trust in nurses scale findings were reported high in all categories <u>Findings for trust:</u> Trust in the nurse is an important factor in the perception of quality nursing care may lead to positive outcomes and ancer survivorship	Non-random sampling restricting generalization of results. Two age groups were not well balanced. Larger number of participants were in the working age group.	RQ: 3 Theme: 3 Quality: ** 8/11=High

Table 2 continued

Author(s)	Design and Purpose	Sample	Findings	Limitations	Data Evaluation
Tuominen et al. (2019)	Qualitative descriptive design using thematic analysis To explore the expectations of patients with colorectal cancer toward their nursing care in the chemotherapy treatment context.	15 participants with colon or rectal cancer in Finland 8 women 7 men Ages 45-72 years median age 59.3 years	<u>Findings for trust:</u> Interviews revealed a theme where patients have the expectation of being skillfully cared for by the nurse. Being cared for by a skilled nurse inspired trust in the nurse which in turn decreased worry and the ability to surrender oneself to the chemotherapy treatment.	Interviews lasted a short period of time. Recruitment of participants was performed by nurses and unclear if bias in selection of participants. All patients were in the chemotherapy phase of treatment.	RQ: 1,2,3 Theme: 1; 2; 3 Quality: * 8/10=High
Van Dusseldorp et al. (2019)	Qualitative phenomenological perspective using the Colaizzi method and	17 outpatients receiving oncological or palliative care in the Netherlands.	Metaphor Identification Procedure identified that a nurse practitioner means trust.	Participant selection bias due to nurse practitioners selecting their own interviews	RQ: 2,3 Theme: 2;3 Quality: * 9/10=High

Table 2 continued

Author(s)	Design and Purpose	Sample	Findings	Limitations	Data Evaluation
Van Dusseldorp et al. (2019) *(continued)*	Metaphor Identification Procedure (MIP) To explore what meaning patients associate with their experiences with a nurse practitioner in oncological or palliative care	Ages 45-79 years	<u>Findings for trust:</u> Patients revealed that trust in the expertise of the nurse practitioner is comforting. The nurse practitioner is trustworthy because they provide help and information, making patients feel safe.	Diverse participants in age, onset of disease and level of education.	

Note. RQ: = Research Question.
* = Checklist for Assessing the Validity of Descriptive/Correlational Studies (Pearson et al., 2006). Ranking scores: low (1-3), medium (4-7), high (8-11).
** = Qualitative Findings Critical Appraisal Scale (Pearson et al., 2006). Ranking scores: low (1-3), medium (4-7), high (8-10).
*** = Mixed Methods Appraisal Tool (Hong et al., 2018). Ranking scores: low (1-5), medium (8-13), high (14-15).
Theme 1 = Nurse Trust Facilitating Behaviors
Theme 2 = Nurse Attributes
Theme 3 = Influence of Patient-Nurse Trust on Health and Psychosocial Wellbeing

DISSERTATION PROPOSAL

Patient-Nurse Trust and the Oncology Patient with a Totally Implantable Vascular Access Port Device

Specific Aims

Problem of Interest

Care of oncology patients is complex. Nurses must have adequate knowledge, skills, and trusting relationships with patients diagnosed with cancer in order to provide quality care (Kreis et al., 2007; Charalambous et al., 2008). One procedure that requires skill and knowledge on the part of nurses and thus, patient-trust in the nurse, is the access and care of the totally implantable vascular access device (TIVAD), also known as a "port." Nurses access and care for oncology patients' TIVADs in order to administer chemotherapy infusions, radiologic dye, as well as to obtain lab work (Bard Access Systems, 2012).

Research on the TIVAD has focused on safety, cost effectiveness, surgical placement techniques, device design, and complications from the perspective of healthcare professionals (Bow et al.,1999; Heibl et al., 2010; Weingart et al., 2014). However, little information is known about the patient perceptions regarding feelings and emotions related to living with a TIVAD and how nursing interventions might best improve those patients' experiences.

Long-term Objectives

The long-term objective for this study is to provide a deeper understanding of patient-nurse trust and perceived quality nursing care for those diagnosed with cancer. A better understanding of patient-nurse trust and perceived quality nursing care will

increase the current knowledge base of nurses and could enhance numerous aspects of oncology patients' care including: 1) providing comfort measures while accessing the TIVAD; 2) reducing non-physical emotional energy expended by oncology patients to control situations related to the treatment of their illness; and 3) informing future nursing interventions that facilitate trust in the nurse.

Study Aims

The specific aims of this study include the following to:

Aim 1

Determine the level of trust by oncology patients when nurses care for and access their TIVADs as measured by the Trust in Nurses Scale (TINS) (Radwin & Cabral, 2010).

Aim 2

Determine oncology patients' level of perceived quality nursing care when nurses care for and access their TIVADs as measured by the Oncology Patients' Perception of Quality Nursing Care Scale (OPPQNCS) (Radwin et al., 2003).

Aim 3

Gain insight into behaviors demonstrated by nurses while caring for oncology patients' TIVADs, as reported by the patients, that facilitate patient-nurse trust and reflect the patients' perceived level of quality nursing care. Perceptions of patient-nurse trust will be explored through individual interviews with oncology patients who have TIVADs.

Significance

Significance of Nurse Trust

Trust has been identified as an attribute related to the concept of patients' feeling safe in the hospital environment (Mollon, 2014). Without patient-nurse trust, patients' feelings of safety in the healthcare environment is compromised, which has the potential to negatively influence outcomes of wellness and recovery (Mollon, 2014). Sacks and Nelson (2007) reported that a lack of trust in nurses occurred when patients experienced uncertainty and expended nonphysical emotional energy to maintain control over situations related to their illness. Conversely, the amount of emotional energy expended by patients to gain control over their illness decreased when nurses were viewed as being trustworthy (Sacks & Nelson, 2007). Radwin (2000) reported that trust in nurses by oncology patients is essential in that patients feel confident that they will be protected from harm.

Trust in the nurse is an integral part of the patient-nurse relationship; significant positive correlations between trust in the nurse, care quality, individualized nursing care, and patient health status have been reported in the literature (Charalambous et al., 2016; Naylor et al., 2013). Using a path coefficient analysis, Charalambous and colleagues (2016) found that trust in nurses is directly influenced by nursing care quality and individualized nursing care. Trust in nurses was also indirectly affected by patient health status (Charalambous et al., 2016) (Appendix A). Nursing care quality and individualized care are elements that nurses need to understand in order to facilitate and maintain patient-nurse trust and successful patient-nurse relationships.

Significance of Nurse Trust by Oncology Patients with TIVAD

The TIVAD is a type of central vascular access catheter that is inserted in patients undergoing chemotherapy treatments for various cancers (Schulmeister, 2017; Taxbro et al., 2013). The catheter is inserted surgically into a vein until the catheter tip is positioned in the central venous circulation at the superior vena cava and right atrium. The TIVAD chamber is implanted under the patient's skin and requires access with a specialized needle to administer infusions. When infusions into the bloodstream are no longer needed, the needle is removed and the TIVAD remains implanted under the skin (Bard Access Systems, 2011, 2012; Schulmeister, 2017). The use of the TIVAD has increased in the oncology population and is considered a safe alternative to peripheral intravenous access when administering chemotherapy infusions (Bow et al., 1999; Niederhuber et al., 1982; Singh et al., 2014; Taxbro et al., 2013).

Although viewed as a safe alternative to using typical intravenous access, complications related to access and usage of the TIVAD exist including: 1) infection of the subcutaneous port pocket; 2) bloodstream infections; 3) bruising at the insertion site; and 4) infiltration of infusions into the surrounding tissue (Walser, 2012). Oncology patients are predisposed to experiencing complications when utilizing TIVADs due to immunosuppression from cancer and chemotherapy drugs (Gudiol et al., 2016; Moore et al., 2018). In addition, the ongoing frequency with which TIVADs are accessed for labs, infusions, radiologic dye, and maintenance flushing places oncology patients in a vulnerable position to develop complications (Gudiol et al., 2016; Moore et al., 2018; O'Grady, 2011).

Nurses are responsible for accessing and caring for TIVADs in patients diagnosed with cancer. Accessing and caring for TIVADs requires nurses to be knowledgeable in methods of TIVAD needle insertion, use of pain management during needle access, aseptic technique, assessment of TIVAD functionality, and recognition of complications (Infusion Nurses Society, 2016; Schulmeister, 2017). Trust is placed in nurses to provide safe care by preventing sepsis, discomfort, and pain (Johns, 1996; Kreis et al., 2007). Throughout their journey, cancer survivors interact with nurses over a long period of time. This consistent interaction presents an opportunity for nurses to facilitate interpersonal trust that is important to assist survivors in achieving optimal wellness.

Review of Literature

An integrative review of the literature from 1980-2018 was conducted to determine the extent and quality of literature regarding adult oncology patients' trust in their nurses. Utilizing electronic databases, Cumulative Index to Nursing and Allied Health Literature (CINAHL), PubMed and Scopus, a total 1033 articles were identified for screening. After removal of duplicate articles and articles that did not meet the inclusion criteria, the final review included 13 articles for data evaluation. This review revealed three themes of trust in nurses from the oncology patients' perspective: 1) influence of trust on health and psychosocial wellbeing; 2) nurse caring behaviors promoting trust; 3) nurse attributes associated with trust.

Influence of trust on health and psychosocial wellbeing. Trusting the nurse is an influencing factor in the patients' hope, endurance in suffering, desire for treatment, follow-up care, and sense of control over cancer (Bando et al., 2018; Charalambous et al., 2014; Holopainen et al., 2014; Koinberg et al., 2002). Holopainen and colleagues (2014)

reported narratives from women with breast cancer (N=49) in which trust in their caregivers made it possible for them to feel that life was bearable between treatments. Koinberg and colleagues (2002) also reported narratives from patients diagnosed with breast cancer (N=19) who, when they felt satisfied with the knowledge and professional skills of their nurses, readily obtained follow-up care such as mammograms and doctor appointments. The complexity of the oncology patients' health status and patient-nurse trust was noted by Bando et al., (2018) who reported that symptom management (e.g., post-operative treatment of dyspnea, sore mouth, and chest pain in patients with lung cancer) influenced their trust in nurses. In turn, trust in nurses influenced their hope as a coping strategy when faced with adverse or stressful situations during recovery.

Nurse caring behaviors promoting trust. Nurse actions such as advocating for patients' health needs, providing holistic care, promoting individuality-of-care needs, and responding to patients' needs were identified in the review (Azimzadeh et al., 2013; Charalambous et al., 2014; Mok & Chiu, 2004; Ozaras & Abaan, 2016; Radwin et al., 2009). Through interviews with 11 oncology patients in Greece and Cyprus, Charalambous and colleagues (2014) found that when nurses provided information individualized to the needs and care of patients diagnosed with cancer, patient trust in the nurse was earned. In contrast, Azimzadeh et al., (2013) reported that monitoring the patient's status and following through with nursing duties were viewed as a more important part of the patient-nurse relationship than the actual feeling of trust between patients and nurses. Ozaras and Abann (2016) reported that patients had a high level of trust toward nurses and in narratives of 81 patients (14%) that nurses doing tasks properly

was a factor that created trust, as compared to 64 patients (13%) reporting nurses not doing tasks properly as a factor that created mistrust.

Nurse attributes associated with trust. Attributes associated with trust in nurses include knowledge, competence, attentiveness, reliability, honesty, and professional attitude (Coffey, 2006; Jakobsson & Holmberg, 2011; Radwin, 2000). According to L. E. Radwin (2000), oncology patients associated trust in nurses with the attribute of professional knowledge. Specifically, patients noted that nurses' knowledge was evident based on the skills and competence that they demonstrated during peripheral intravenous line insertions (Radwin 2000). Radwin (2000) further described oncology patients' trust in nurses by observing nurse attributes such as being attentive to patient needs, reliability, and honesty. Similarly, Coffey (2006) concluded that nurse competence leads to patients trusting their nurses. Additionally, Jakobsson and Holmberg (2011) noted that the professional attitude of nurses influenced oncology patients to regard their nurses as competent and trustworthy. The general attitude of the nurses perceived by patients as being "nice and cheerful" led them to view these nurses as self-assured and, therefore, trustworthy (Jakobsson & Holmberg, 2011, p. 434).

Gaps in Knowledge

As identified by the literature review, the trust oncology patients place in nurses is a fundamental part of the patient-nurse relationship. To date, knowledge of patient-nurse trust has been obtained through descriptive and theory-generating studies. Recently, Charalambous and colleagues (2016) identified correlations between trust in the nurse, care quality, individualized nursing care, and patient health status in the *Model Trust in Nurses*. These correlations introduce the viewpoint that nurses need to understand factors

that influence the generation and maintenance of patient trust in the nurse. To completely understand these factors, nurses need to distinguish specific nursing interventions that facilitate and maintain patients' trust. Specific nursing interventions that facilitate and maintain patients' trust are yet unexplored in the literature. During the cancer trajectory, oncology patients interact with nurses in a variety of situations and settings, including vascular access (e.g., TIVADs). The intimate nature in which patients rely upon nurses to access and care for TIVADs provides a context in which trust in nurses can be assessed and demonstrated. This topic is of importance, as patients diagnosed with cancer are a fast-growing populace in the United States (US) influenced by the aging of Americans and the prevalence of cancer survivors over the age of 65 (Bluethmann et al., 2016). This growing populace places an increased need for nursing care and provides opportunities for nurses to develop trusting relationships. Future research has the potential to not only identify specific nursing interventions that impact, maintain, and facilitate oncology patients' trust in nurses, but may also provide information that may be applied to other patients with chronic illnesses.

Importance of the Research to Health and Nursing

Contributions of this proposed research study that address the project aims will advance nursing science from two perspectives. First, data collected from the perspective of oncology patients with TIVADs will add to the understanding of trust in the patient-nurse relationship. Patient nurse-trust is an integral part of the nurse-oncology patient relationship as the nurse oversees and manages their care. Specifically, the nurse oversees the management and care of patients' TIVADs utilized for administering chemotherapy and other treatment options. Information obtained from oncology patients' perspectives

provides a deeper insight into the caring role of nurses. Second, the specific actions performed by nurses, as identified by oncology patients with TIVADs, will operationalize the concept of trust. The identified interventions will assist in the creation of appropriate nursing strategies that facilitate and promote patient-nurse trust in the nurse caring for TIVADs. These identified interventions potentially provide a process that nurses can use to continually strengthen quality and safe care of all patients.

Theoretical Model Guiding Research

The theoretical model used to guide this research is the *Trust in Nurses Model* (Charalambous et al., 2016). According to this model, generating and promoting trust in nurses requires identifying interventions which promote nursing care quality, individualized nursing care, and the patient's health status (Charalambous et al., 2016). A schematic of the *Trust in Nurses Model* (Appendix A) was designed by the primary investigator (PI) with permission from Andreas Charalambous for use in this study (A. Charalambous, personal email communication, February 26, 2019). The model is unique in that it provides the opportunity for patient trust in the nurse to be investigated from the perspective of oncology patients. The model also facilitates the aims of this proposed explanatory sequential mixed methods study.

The first two aims of this study, determining the level of trust (Aim 1) and the perceived quality of nursing care (Aim 2), are depicted in the schematic *Model of Trust in Nurses* (Charalambous et al., 2016). As depicted in Appendix A, "nursing care quality" relates directly to "trust in [the] nurse." Utilizing the TINS and OPPQNCS will provide empirical data as to the level of "nursing care quality" and the level of "trust in [the] nurse" that is perceived by oncology patients receiving chemotherapy through TIVADs.

The third aim of the study is to gain insight into nursing interventions used when caring for the TIVAD that promote patient- nurse trust that results in perceptions of quality nursing care (Aim 3). This aim will also be achieved by applying the *Trust in Nurses Model* (Charalambous et al., 2016) that depicts "individualized nursing care" as also relating directly to "trust in [the] nurse" (Appendix A). Patient perspectives of "individualized nursing care" will be examined through qualitative analysis of semi-structured interviews. By determining the patient's level of perceived nursing care quality and trust in the nurse, individualized nursing care plans can be established using informed interventions that ensure these outcomes.

Innovation

The proposed study is innovative for several reasons. First, this research will approach the experience of living with a TIVAD from the perspective of oncology patients. To date, research has focused on the safety, cost effectiveness, surgical placement techniques, device design and complications of TIVADs from the perspective of healthcare providers (Bow et al., 1999; Heibl et al., 2010; Weingart et al., 2014). Approaching the topic from the perspective of oncology patients will provide a practical meaning to interventions utilized to facilitate patient-nurse trust. Second, the utilization of an explanatory sequential mixed-method research design will assist in exploring nurse trust within the context of oncology patients living with TIVADs. Unsolicited narratives, as reported by patients in current literature, provide a brief insight into the oncology patients' perspective of living with a vascular access device (Ozaras & Abaan, 2016; Weingart et al., 2014). To date, a mixed-methods design has not been utilized to investigate nurse trust by oncology patients with TIVADs. Third, this research expands

the interpretation of the oncology patient-nurse relationship utilizing the *Model of Trust in Nurses* (Charalambous et al., 2016) that has recently been empirically tested using a European setting in Cyprus, Finland, Greece and Sweden. The utilization of the *Model of Trust in Nurses* will be the first time the model will guide a study in the US with the use of the schematic developed by the PI.

Approach

Preliminary Work

Preliminary work included an interpretive phenomenological pilot study conducted as part of a doctoral course requirement (Rajcan et al., 2017). The purpose of this study was to explore and understand the patient perspectives of living with TIVADs and its meaning (Rajcan et al., 2017). Three participants were interviewed and asked what it means to have a port, and the role of the nurse in caring for their port. Analysis of audio-recorded interview data using the constant comparative method revealed 16 common topics combined into nine categories. Although data saturation was not attained nor expected in this pilot, findings suggested that patients with TIVADs experience a unique patient-nurse relationship. Two patients indicated the importance of having trust in their nurses who cared for their TIVADs. All participants (N=3) conveyed the importance of gaining the patients' perspective regarding the quality of care when nurses accessed their TIVADs (Rajcan et al., 2017). The results of this pilot study support the assertion that future research should be conducted to further explore the unique patient-nurse relationship as it relates to patients with TIVADs (Rajcan et al., 2017).

Research Design

This research proposal expands upon this pilot work by using a two-phase sequential explanatory mixed method design to obtain a more thorough understanding of nurses' behaviors that promote trust and quality nursing care as perceived by oncology patients with TIVADs. Quantitative data will be collected first using sociodemographic, TINS, and OPPQNCS tools followed by in-depth qualitative interviews from the same participant sample. The rationale for using the sequential explanatory approach is to use qualitative data to learn more details about the quantitative results in the participants' own words and to compare the two data sets in order to provide more comprehensive evidence of patient-nurse trust (Creswell & Plano Clark, 2018).

Setting and Population

Participants will be recruited from two hospital-based outpatient cancer infusion centers located in the northeastern region of the US. The top five cancers treated at this hospital system are prostate, lung, colorectal, breast, and female genital. Permission to access patients at the cancer centers has been obtained. Study inclusion criteria consist of the following: 1) male or female patients age 18 years or older and diagnosed with hematologic and/or solid-tumor cancers; 2) fluent in reading, writing, speaking, and understanding the English language; 3) patients with a TIVAD in place for greater than one month at the time of data collection; 4) TIVAD utilized for chemotherapy infusions; 5) patients with a TIVAD accessed with a Huber needle at a minimum frequency of monthly; and 6) access to smartphone, tablet or computer. The one-month cutoff period was chosen to allow the maximum number of recruited participants, as patients diagnosed with cancer begin treatment within one month of port insertion. Patients will be excluded

from this study if they have cognitive impairments such as dementia and mental illness as identified by the nursing staff at the infusion centers.

Sample Size and Sampling Procedures with Power Analysis

For the quantitative portion of the study, a sample size was determined using a priori computation of sample size using G*Power: Statistical Power Analysis (Faul et al., 2014) with the testing parameters of mean difference with medium effect size (d=0.50) and 0.05 level of statistical significance and 95% power; this approach yielded a total minimal sample size of 54 participants. To account for incomplete surveys and participants that withdrawal from the study an additional 30% of the 54 participants will be recruited for the quantitative portion of the study to be a maximum of 72 participants. A sub-sample of 10 to 20 participants will be interviewed from the recruited participants using open-ended semi-structured questions.

The goal of the qualitative portion of the study is to develop an in-depth understanding of a subset of participants to maximize information on patient-nurse trust in the context of living with a TIVAD and to reveal trends that would otherwise remain hidden or unclear (Creswell & Plano Clark, 2011). Therefore, there is no steadfast rule regarding qualitative sample size. Although data saturation (the lack of new information being obtained from the participants) is desired in qualitative research (Guest et al., 2006; Richards & Morse), the proposed sample size for phenomenological research has been based upon "the review of extant studies and clinical experience (Steeves, 2000, p. 56)." Therefore, the estimate of participants needed for this study will be based upon existing similar studies of patient-nurse trust. These studies include Charalambous, Efstathiou, Adamakidou, and Tsangari (2014) who reached saturation in their mixed-methods study

with 11 interviewed participants, and Mok and Chiu (2004) who reached saturation in their phenomenology study with 20 interviewed participants. Therefore, an estimate of 15 to 25 participants will be recruited for interviews. Interviews will continue until data saturation is obtained.

Purposeful sampling will include the strategy of maximum variation (Creswell & Plano Clark, 2018). Maximum variation sampling strategy is to purposefully select individuals with TIVADs that may have different perspectives of the phenomenon of patient-nurse trust (Creswell & Plano Clark, 2018). The use of initial quantitative results obtained from the sociodemographic, TINS, and OPPQNCS data will identify participants who will be selected for interviews to further explain the phenomenon of patient-nurse trust (Creswell & Plano Clark, 2018).

Variables and Measures

Consent. Participants will be asked to provide voluntary consent to participate via an online consent form (Appendix B) presented as the first page in the study link prior to accessing the three tools: sociodemographic, TINS, and OPPNQCS.

Screening Questionnaire. Participants will be asked to complete a screening questionnaire. The screening questionnaire is designed to ensure that participants meet the study inclusion criteria prior to accessing the sociodemographic, TINS, and OPPNQCS data collection tools. Qualtrics software (Qualtrics International, 2016) is set up so that if the participant answers “no” to any of the five screening questions they will not be permitted access to the data collection portion of the survey (Appendix C).

Sociodemographic. Participants will be asked to complete a six-item investigator-designed sociodemographic tool to describe the sample population and

obtain background information about participants relevant to the study focus and review of literature such as gender, race/ethnicity, age, type of cancer, length of time TIVAD has been in place, and highest education level attained (Appendix D). These data will be used to provide an aggregate description of the sample population to correlate these variables with qualitative themes, TINS, and OPPQNCS.

Trust in Nurses Scale (TINS). The TINS will be used to address Aim 1 of the study, which is to determine oncology patients' level of trust in nurses caring for the TIVAD (Radwin & Cabral, 2010). The level of trust in nurses is the outcome variable as indicated by the total TINS score. The TINS measures the level of trust oncology patients have towards their nurses (Radwin & Cabral, 2010). The TINS contain four items that address either a nursing activity or a patient feeling. The participant responds by ranking frequency using a 6-point Likert-type scale (1 = never, 2 = rarely, 3 = some of the time, 4 = a good bit of the time, 5 = usually, 6 = always). A total score is obtained by tallying response totals with a possible range of scores from four to 24. The higher the total score, the greater the patient's trust in the nurse . Construct validity of the TINS was established with 187 hospitalized cancer patients; the internal consistency reliability Cronbach's alpha coefficient was reported as 0.82 (Radwin & Cabral, 2010). Permission to utilize the TINS has been obtained from the creator.

Oncology Patients' Perception of Quality Nursing Care (OPPQNCS). The OPPQNCS will be used to address Aim 2 of this study, which is to determine oncology patients' perception of quality nursing care provided by the nurses caring for their TIVAD. The OPPQNCS form contains 14 questions used to measure the oncology patient's perception of quality nursing care that includes four subscales of patient-

centered, interpersonal nursing interventions. These interventions are referred to as attributes of nursing quality care: Responsiveness (five items, $\alpha = 0.86$), Individualization (three items, $\alpha = 0.83$), Coordination (three items, $\alpha = 0.83$), and Proficiency (three items, $\alpha = 0.85$) (Radwin et al., 2003). The oncology patient responds by ranking frequency using a 6-point Likert-type scale (1= Never, 2 = Almost Never, 3 = Sometimes, 4 = Often, 5 = Almost Always, 6 = Always). Higher total scores represent higher levels of patient perceived quality of nursing care (Radwin et al., 2003). Possible total range of scores are from 14 to 84. Permission to utilize the OPPQNCS from the creator has been obtained.

Patient Interviews. Nursing interventions from the perspective of oncology patients living with a TIVAD will be obtained using semi-structured interview questions with the PI. Appendix E lists questions and probes that will be used in the face-to-face interview. Examples include**:** "What actions by the nurse when caring for/accessing your port are important to you and "Have you ever had an experience where you trusted or did not trust the nurse when caring for/accessing the port?". Probes such as "What do you mean?" will be used to encourage the participant to continue talking and lead the interview. Face-to-face or telephone interviews will be audio recorded and scheduled for approximately 45 to 60 minutes.

Field Notes. Field notes will be recorded in writing by the PI as soon as possible after the interview to capture reflective thoughts of the PI regarding preconceptions, assumptions, or prejudices. Field notes will be used to assist the PI in the reflection of the interviews to identify her own cultural awareness, beliefs, and bias which may influence the way data is collected and analyzed. Field notes will also include the setting and

atmosphere of the interview, lighting, temperature, and any distractions during the interview. In addition, participants' non-verbal communication such as hand gestures, posture changes, crying, and facial expressions will be recorded to provide details not captured by the audio recording. These notations will assist in analyzing the interview data for emotions not verbalized but displayed by the participants.

Data Collection Procedure

Institutional Review Board (IRB) approval will be sought from Duquesne University and a large hospital health system in the northeastern region of the US (Appendix F). Data collection will not be limited to the large hospital system, as the use of a referral recruitment strategy will be utilized. Once IRB approvals are obtained, the PI will meet in person with the nursing staff at the cancer centers to discuss the study and their role as gatekeepers. Gatekeepers are those individuals at different levels in an organization that assist the PI in obtaining access to individuals at the study location (Marshall & Rossman, 2015). In this study, gatekeepers are the cancer center medical director, clinical manager, and the nursing staff. This informational session will be conducted prior to data collection during each of the infusion center's weekly staff meetings. The PI will provide light snacks to the nursing staff as gratitude for their assistance with identification and recruitment of participants. Since the nursing staff has information based on nursing care of potential participants, they will be given the study inclusion criteria. Recruitment fliers will be provided to staff, by the PI, to hand to prospective participants (Appendix G). The fliers will provide a QR code and URL link to the Qualtrics XM survey software. For phase one survey portion of the study, an online consent form will be used (Appendix B). For phase two, a consent form requiring

participant signature will be utilized for those completing the interview portion of the study (Appendix H). Survey completion will take 10-15 minutes. A $10 gift card will be given as compensation upon completion of the survey. If the participants are contacted and join in the interview portion of the study, an additional $20 gift card will be offered at the end of the interview. At the completion of the online study survey, participants will be directed to provide contact information and indicate interest in participation in an interview with the PI (Appendix I). It is possible that not all participants will be selected for interviews.

The interview will be conducted at a time, in a private location, and using a mode (face-to-face or telephone) agreed upon by both the participant and the PI. Face-to-face interviews will be audio recorded using a hand-held digital voice recorder. Telephone calls will be recorded using the TapeaCall app for iphone (TelTech, 2019). All interviews will be transcribed verbatim by an experienced transcriptionist using GoTranscript services (GoTranscript, 2018) and subsequently entered into NVivo 11 qualitative software for analysis (QSR International, 2016).

Referrals to the study by gatekeepers or study participants will be accepted. The referred participant is not required to be part of the hospital cancer centers. Referrals to the study from outside of the hospital infusion centers will occur with the use of the recruitment flyer. The recruitment flyer may be presented to other potential participants who are known to gatekeepers and current participants. This use of nominated or snowballing sampling technique will be utilized to obtain additional participants (Richards & Morse, 2013).

Data Analysis

Responses from the sociodemographic questions and raw scores obtained from the TINS and OPPQNCS will be entered in Microsoft Excel (Microsoft corporation, 2016) and processed with SPSS statistical software where it will be coded into the final form. (IBM Corporation, Released 2019). These data will be labeled as sociodemographic, TINS, and OPPQNCS. All coded variables will be assessed for coding errors by cross-tabulating values from the Qualtrics survey software with final coded results in the SPSS program**.** Qualitative data will be audio recorded, transcribed, and analyzed using NVivo software (QSR International, 2016).

Descriptive statistics such as means, standard deviations, minimum and maximum values, frequency, and coefficient of variation will be used to analyze cumulative mean scores of the continuous data from the TINS, OPPQNCS, and categorical factors such as gender, age, port time in situ, and type of cancer as collected by the sociodemographic tool. Frequency analysis of the sub-population categories from the sociodemographic data will be conducted. Statistical tests for normality will be performed on the sample distribution of the TINS total scores as an important prerequisite and core assumption for building and interpreting a linear model where the TINS mean total score is the outcome variable. The suggested linear model will include a continuous covariate OPPNQCS cumulative score and will be used to analyze the quantitative data with the categorical factors of the sociodemographic data.

The direction and strength of multiple Pearson correlations with their respective P-values will be considered, calculated, presented, and interpreted on all possible pairs of the total cumulative scores of the TINS and OPPQNCS with the sociodemographic data. The comparison of proportions or means of the TINS and OPPQNCS by

sociodemographic data will be analyzed with t-tests or with a simpler one-way ANOVA model. Prior to this analysis, a Chi-squared or exact test will be used in a contingency table analysis to determine the degree to which some sociodemographic categorical variables influence or are associated with the total cumulative score of the TINS and OPPNQCS. This data analysis will be used to answer aims one and two of the study.

Patient Interviews

The qualitative interview data will be completed using basic qualitative description, and analyzed with conventional content analysis (Hsieh & Shannon, 2005). The qualitative description method is used when direct descriptions of phenomena are desired to answer research questions about the "who, what, and where of events" (Sandelowski, 2000, p. 338). The results are presented in common everyday language that does not include theoretical, conceptual, or the researchers' interpretive perspective (Sandelowski, 2000). This approach involves moving data created from interviews to a narrative text for analysis. The conventional content analysis approach as described by Hsieh and Shannon (2005) is based on the following steps: 1) immersion in the data; 2) reading the data word by word and highlighting key thoughts and concepts; 3) re-reading the text to develop codes of the highlighted concepts; 4) combining codes into meaningful categories and subcategories; 5) developing definitions for each category and subcategory (Hsieh & Shannon, 2005). In this investigation the strategies, techniques, and practices of nurses will be explored during interviews from the perspectives of oncology patients with TIVADs. Data collected on the final qualitative themes will be labeled for final analysis and compared with quantitative results.

To ensure rigor and trustworthiness of the qualitative study findings, various strategies will be utilized to ensure credibility, transferability, dependability, and confirmability of qualitative data (Creswell, 2014). Credibility will be ensured with the use of peer debriefing and field notes (Creswell, 2014). A peer debriefing of the qualitative data will be conducted with the use of a secondary doctoral-prepared investigator (dissertation chair) who is experienced in qualitative research who will review the interview data. This secondary investigator (dissertation chair) will review the interview transcripts for accuracy of coding and the assignment of data to resulting themes. Field notes will be written by the PI regarding the manner and reaction of the interactions that occurred during the interview process. Reading the field note entries regarding the PI's thoughts and reactions to the interviews will assist the PI in reducing the likelihood that bias and personal beliefs will influence the data collection and analysis process (Creswell, 2014). Dependability and confirmability will be achieved with the use of an auditor to review the audit trail that includes field notes and the qualitative data analysis in Nvivo. An audit process will be conducted by a PhD prepared investigator (dissertation chair), using the field notes and examining interview transcripts (Creswell, 2014). Transferability of the findings of the study, as it applies to others in similar situations, will be provided by describing the different perspectives of the themes as presented by verbatim quotes obtained from interviews. The descriptions as conveyed in the narrative findings will provide vital, rich data so that applicability of the findings to other research settings can be determined by the reader. This approach to transferability allows the reader of the research to have enough details to understand the shared experiences by the participants and arrive at their own conclusions (Creswell, 2014).

Integration of Quantitative and Qualitative Data.

The connection between quantitative and qualitative data will occur at two different points in this explanatory sequential study. First, it will involve connecting the results from the initial quantitative phase to purposefully select participants for the follow-up qualitative data collection phase. This plan includes identifying participants with varying length of time ports have been in place. Second, once the qualitative phase is complete, the two sets of connected results will be integrated. Conclusions about how the qualitative results explain and extend the quantitative results will be related as a description using interview data and themes.

Study Limitations

Several limitations for this study have been identified. First, the use of a convenience sample is a limitation in that a diverse sampling of participants may not be obtained. A risk of homogeneity of the sample can potentially affect the transferability of the study findings. Second, interviews conducted using a telephone will make it difficult to capture nonverbal expressions of participants that may enhance interview findings. Third, nurses caring for patients with TIVAD's will not be interviewed and triangulation of findings will not be conducted. Thus, the nurse perspective will not provide insight into the experience of the participants. Fourth, potential bias by the PI may be a limitation in that the PI is a vascular access specialist with over ten years of experience. Fifth, it is possible that online surveys provide the opportunity for a lack of subjectivity and truthful responses. Lastly, there is a potential for bias related to participants being interviewed. The responses to the interview may be influenced by the prior completion of the online survey.

Potential Problems with Procedures and Strategies

Potential problems and corrective strategies have been developed to address the potential pitfalls of the study. Due to the large number of prostate and female breast cancer patients being treated at the centers, gatekeepers will be made aware that both male and female participants with different types of cancer are to be approached to join the study. Interview participants will be selected to include a variant range of time ports are in situ. This is to maximize the variation of perspectives of patient-nurse trust when caring for TIVADs. The interviews conducted by telephone will be utilized as an alternative and face to face interviews will be a priority. To encourage face to face interviews, utilization of private treatment and conference room areas are available at the infusion centers for use in this study. Participants can schedule an interview before, during, or after their infusion appointment making it convenient to complete an interview. The telephone narrative transcript will note changes in tone and pitch of participants that may provide insight to non-verbal communication. Investigator bias will be controlled with the use of field notes to assist in identification of personal beliefs and professional experiences that could influence the data interpretation and analysis process. In addition, participants are recruited from medical facilities that do not have previous contact with the PI in her role as vascular access nurse**.** The possibility of online surveys being completed by someone else and not the participant will be addressed by the availability of a loaner iPad provided by the PI. The availability of a PI-provided iPad will encourage participants to complete the study link while at the infusion center before, during or after their infusion. Any emotional distress experienced by the interview participants will be referred to an experienced oncology support counsellor. Lastly, the potential bias of

interviewees related to prior completion of the online survey will be noted in the discussion section as a possible influence on interview responses.

Protection of Research Participants

Institutional review board approval will be obtained from Duquesne University and Main Line Health System. Recruitment for participants will occur at the outpatient cancer infusion centers with the use of nursing staff from Paoli and Lankenau Cancer Centers who serve as gatekeepers. As appreciation, an insulated travel mug with the Duquesne University logo will be given to each of the gatekeepers. The online consent form will provide potential participants with information regarding the purpose, procedure, risks, benefits, compensation, confidentiality, right to withdraw, and voluntary nature of the study (Appendix B). If desired by the participant, a paper copy of the consent form will be provided by the PI. When approached by designated gatekeepers, participants will be informed that declining to participate in the study will not affect their treatment at the infusion center. Quantitative data will be obtained electronically through Qualtrics software that provides security of collected quantitative data by password protection, data encryption, firewall systems and provision of anonymous surveys (Qualtrics International Inc, 2018). Interviews will be conducted in a private location agreed upon by the participant and PI that is free of interruptions or being overheard by other persons. Infusions centers have private infusion rooms and conference rooms available for use by the PI and interview participants. Transcription of interviews will be conducted by GoTranscript service that utilizes a secure SSL encryption. All records will be kept confidential; unique identification codes linking results of the quantitative survey with qualitative data will be kept in a locked cabinet at the home of the PI and will be

destroyed six years after the completion of all activities related to the study. In addition, the PI will be the only person with access to identifiable information linking participant names with results. Any results of the study that may be published or presented at professional meetings will not include participants' identity.

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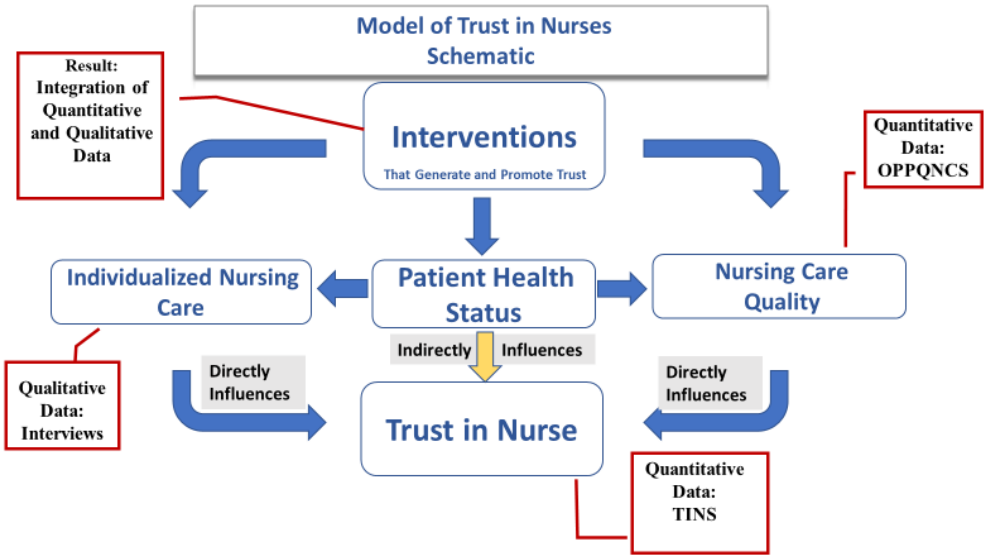
Appendix A



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Charalambous, A., Radwin, L. E., Berg, A., Sjovall, K., Patiraki, E., Lemonidou, C., . Suhonen, R. (2016). An international study of hospitalized cancer patients' health status, nursing care quality, perceived individuality in care and trust in nurses: A path analysis. *International Journal of Nursing Studies, 61*, 176-186. doi:10.1016/j.ijnurstu.2016.06.013

Appendix B
Online Consent form

DUQUESNE UNIVERSITY
600 FORBES AVENUE ♦ PITTSBURGH, PA 15282

CONSENT TO PARTICIPATE IN A RESEARCH STUDY

TITLE:
Patient-nurse trust and the oncology patient with a totally implantable vascular access port device

INVESTIGATOR:
Lois Rajcan MSN, RN, CRNI, PhD candidate. Duquesne University School of Nursing. Phone: . Email: rajcanl@duq.edu

ADVISOR:
Joan Such Lockhart, PhD, RN, CNE, ANEF, FAAN. Professor at Duquesne University School of Nursing. Phone: 412-396-6540. Email: lockhart@duq.edu

SOURCE OF SUPPORT:
This study is part of completing a doctoral degree in Nursing at Duquesne University.

STUDY OVERVIEW:
You are being asked to join in a nursing research study. A group of 72 adults with ports used for chemotherapy will be enrolled. A smaller group of 10 to 20 will be interviewed from the enrolled 72 adults. You will be given flyers with information to connect to the online consent and study survey. You will be asked to sign a separate consent if doing a talk with Lois.

PURPOSE:
This study is to obtain your opinion of nurses' actions that promote trust and quality nursing care. This research is looking at nurse actions when caring for a port.
To qualify, you must be:

1. Diagnosed with cancer.
2. Age 18 years or older.
3. Able to read, write and understand the English language.
4. Port in place greater than 1 month at the time of data collection.
5. Port used for chemotherapy infusions.
6. Port accessed at least monthly.

PARTICIPANT PROCEDURES:
If you join the study, you will be asked to provide consent by clicking "I consent, begin

the study." When you consent to join in the study you will be asked to complete an online survey that includes:

1. 6-background questions
2. 14-item Oncology Patients' Perception of Quality Nursing Care Scale
3. 4-item Trust in Nurses Scale
4. Personal contact information

The online questions will take 10-15 minutes to complete. At the end of the online survey you will be asked if you are interested in talking with the principal investigator (PI) Lois Rajcan. The time will allow us to talk about your port. You will be asked to provide contact information. If you agree to talk to Lois, she may contact you to set up a time and place with you. The talk will take 45 to 60 minutes of your time at a location of your choice and conducted in person or by telephone. The talk will be recorded and transcribed. It is possible that not all survey participants will be chosen for talks with Lois.
These are the only requests that will be made of you.
Joining this study is voluntary. This study is not part of the care you are getting at the cancer center.
You have the right to withdraw at any point during the study for any reason and without any consequence to you, or your care.

RISKS AND BENEFITS:
This study poses no risks greater than those you come across in everyday life. There is no immediate benefit to you. Although you may not have any direct benefit in joining this study, you will have the knowledge that you are adding to the progress of nursing knowledge to assist in caring for oncology patients with ports.
Should you feel distress during the talk, we will stop and begin again as decided by you. Support will be offered to you at your request. Contact for support will be made to Marge Lange, certified oncology social worker at (484) 653-8181.
COMPENSATION:
A $10 Wawa or Visa gift card will be given for your time when you complete the survey. If you are contacted and join in the talk, an additional $20 Wawa or Visa gift card will be offered to you at the end of the conversation. It is possible that not all participants will be selected for talks with Lois. Joining this project is at no cost to you.
CONFIDENTIALITY:
Any personal information you provide will be kept private. Online survey responses are kept secure through the password protected Qualtrics software platform. Qualtrics software is certified and approved for personal information security. Face to face talks will occur in a location free of being overheard or interruption. Telephone talks will occur in the private home office of the researcher. Audio recordings will be changed to

written documents. A secure transcription service will be used. Written materials, audiotapes and consent forms will be stored in a locked file in the home of Lois Rajcan. All personal information you provide will be destroyed six years after the study is complete.

The study may be published or presented at professional meetings. Your identity will not be shared or known. Any publications or presentations about this research will use data that is joined with all subjects. No one will be able to learn how you responded.

HIPAA AUTHORIZATION:

By joining this study, you are giving permission to use your personal health information, and/or your medical record, and/or information that can identify you. The health information procedures in this study are HIPAA compliant. Any health information obtained will be stored by Lois Rajcan for six years after the study is finished. All personal health information will be destroyed after six years.

RIGHT TO WITHDRAW:

You are not required to join this study. You can withdraw at any time by not completing and/or submitting the survey. Once you have submitted the online survey, it will be included in the study.

SUMMARY OF RESULTS:

A summary of the results of this study will be provided at no cost. You may request this summary from Lois Rajcan. The information provided to you will not be your individual responses, but a summary of what was learned during the research project.

FUTURE USE OF DATA:

Any information collected that can identify you will not be used for future research studies. It will not be provided to other researchers.

VOLUNTARY CONSENT:

I have read this consent form and understand what is being asked of me. I also understand that joining this study is voluntary and that I am free to withdraw at any time, for any reason without any consequences. Based on this, I certify I am willing to join this research study.

I understand that if I have any questions about joining this study, I may call Lois Rajcan at 610-913-0036, or supervising faculty Dr. Joan Such Lockhart at 412-396-6540.

If I have any questions regarding my rights and protections as a subject in this study, I can contact Dr. David Delmonico, Chair of the Duquesne University Institutional Review Board for the Protection of Human Subjects at 412.396.1886 or at irb@duq.edu.

In addition, if I have any problems, concerns and questions as a research subject, I may contact the Main Line Health Office of Research Protections at 484-476-2692

to speak to someone independent of the research team or email to mlhirb@mlhs.org.

- ◯ I consent, begin the study
- ◯ I do not consent, I do not wish to participate

Appendix C

Screening Questionnaire

1. Are you 18 years of age or older?
    a. Yes
    b. No
2. Are you diagnosed with cancer?
    a. Yes
    b. No
3. Do you have a port in place? (Also known as chemo-port, medi-port or totally implantable vascular access device (TIVAD)
    a. Yes
    b. No
4. Has your port been in place for more than 1 month?
    a. Yes
    b. No
5. Is your port used for chemotherapy infusions?
    a. Yes
    b. No

Appendix D

Sociodemographic Data

Please tell us some information about your background so that we can review the responses to this study and make sure that we are receiving and respecting everyone's opinions in an effort to provide the highest quality of care.

1. What is your age? _____ years (fill in the blank)

2. What is your identified gender? (choose one)
    a. Male
    b. Female
    c. Other: _____

3. Which category best describes your race? (One or more categories may be marked)
    a. American Indian/Alaska Native
    b. Asian
    c. Black or African American
    d. Native Hawaiian/Other Pacific Islander
    e. White
    f. Hispanic, Latino or of Spanish origin
    g. Other race: _____
    h. Decline
    i. Unavailable/Unknown

4. What is your education level? (choose one)
    a. Less than high school degree
    b. High school diploma
    c. Some college but no degree
    d. Associate degree
    e. Bachelor's degree
    f. Master's degree
    g. Doctorate degree

5. How long have you had your port? _____ (fill in the blank months/years)

6. What is your cancer diagnosis? _____

Appendix E

Semi-Structured Interview Questions and Probe Questions

1. Tell me about your thoughts on trust.

2. I am curious about the role of the nurse in relation to your port (TIVAD). Tell me how you see the role of the nurse when caring for/accessing your port (TIVAD)?

3. What actions by the nurse when caring for/accessing your port (TIVAD) are important to you?

4. Have you ever had an experience where you trusted or did not trust the nurse when caring for/accessing the port (TIVAD)?

5. Is there anything else that we have not discussed that you would like to share with me before we conclude our interview?

Interview Probes

1. Can you please explain that further?

2. Could you please tell me more about that?

3. How/what do you mean?

4. Go on…

5. Can you give me an example?

Appendix F

To: Lois Rajcan
From: David Delmonico, IRB Chair
Subject: Protocol #2019/05/19 - Approval Notification
Date: 06/13/2019

The protocol **Patient-Nurse Trust and the Oncology Patient with a Totally Implantable Vascular Access Port Device** has been approved by the IRB Chair under the rules for expedited review on **06/13/2019**.

The consent form is stamped with IRB approval and a three-year expiration date. You should use the stamped forms as originals for copies that you distribute or display.

The approval of your study is valid through 06/09/2022, by which time you must submit an annual report either closing the protocol or requesting permission to continue the protocol for another year. Please submit your report by **05/12/2022** so that the IRB has time to review and approve your report if you wish to continue it for another year.

If, prior to the next review, you propose any changes in your procedure or consent process, you must complete an amendment form of those changes and submit it to the IRB Chair for approval. Please wait for the approval before implementing any changes to the original protocol. In addition, if any unanticipated problems or adverse effects on subjects are discovered before the annual review, you must immediately report them to the IRB Chair before proceeding with the study.

When the study is complete, please terminate the study via Mentor by completing the form under the Continual Renewal tab at the bottom of your protocol page and clicking on terminate. Please keep a copy of your research records, other than those you have agreed to destroy for confidentiality, over a period of five years after the study's completion.

If you have any questions, feel free to contact me.

David Delmonico, Ph.D.

Institutional Review Board, Chair

irb@duq.edu

Appendix F (continued)

Main Line Health

OFFICE OF
RESEARCH PROTECTIONS

259 N. Radnor Chester Road
Suite 290
Radnor, PA 19087
TEL 610.225.6222
FAX 610.293.8202
mainlinehealth.org

July 19, 2019

Lois Rajcan, MSN, RN, CRNI
Lankenau Medical Center
100 Lancaster Ave.
Wynnewood, PA 19096

RE: F/N-R20-3894LP – Patient - Nurse Trust and the Oncology Patient with a Totally Implantable Vascular Access Port Device

Dear Ms. Rajcan:

A research study to obtain understanding of nurses' actions that promote trust and quality nursing care was reviewed and approved by the Main Line Hospitals Institutional Review Board (MLH IRB) by expedited procedures in accordance with 45 CFR 46.110. The MLH IRB approved a waiver of documentation of consent for the online portion of the study in accordance with 45 CFR 46.117(c)(1). An IRB approved stamped informed consent document has been provided for enrollment of prospective subjects for the interview arm of the study.

Please note the following information:

Unanticipated Problems: If any unanticipated problems involving risks to subjects or others occur during the conduct of this study, you are required to notify the Main Line Hospitals Institutional Review Board via the Office of Research Protections as soon as possible and in all cases, within 10 working days. When a death is unforeseen and indicates subjects or others are at an increased risk of harm, report within 24 hours of knowledge of the event.

Amendments: If you wish to change any aspect of this study, e.g. procedures, consent forms, or an investigator(s), please submit the requested change on the appropriate forms to the Office of Research Protections. Forms for requesting such changes are available at the Office of Research Protections or at www.limr.org/ora. Please be aware that no change to an approved protocol can be implemented prior to Main Line Hospitals Institutional Review Board (MLH IRB) review/approval unless it is in the best interest of the subject.

Annual Update: In accordance with regulation 45 CFR 46.109(f), revised effective January 21, 2019, continuing review of research eligible for expedited review is no longer required. An Annual Update is requested on or before July 18, 2020 to update study status, confirm personnel and training(s), and submit the required annual conflicts of interest disclosure form(s). It is recommended that the Annual Update be submitted by June 1, 2020.

Completion of Study (Final Report): It is the investigator's responsibility to notify the Main Line Hospitals Institutional Review Board via the Office of Research Protections of the completion of the approved study following the appropriate submission procedures on the appropriate forms available from the Office of Research Protections or at www.limr.org/ora.

As a reminder, the Main Line Hospitals Procedures for Compliance with Federal Regulations for the Protection of Human Subjects is available at the Office of Research Protections or at www.limr.org/ora. If you change the experimental design of the research described above, please inform the Office of Research Protections so a determination can be made if the change requires MLH IRB review.

If you have any questions, please call the Office of Research Protections at 610-225-6222.

Sincerely,

Albert A. Keshgegian, M.D.
Chairman, Main Line Hospitals Institutional Review Board

Appendix G

Do You Have a Port for Chemotherapy Infusions?

Patients with cancer are asked to join a nursing research study about living with a port.

To join the study, you must be at least 18 years old and have a port for chemotherapy infusions.

To join the study:

- **Complete an online survey (10 - 15 minutes).**
- **Complete a one-hour interview with the Principal Researcher to discuss your experiences living with a port.**
  - **Note: Not all participants may be selected for the interview.**

For your time:

$10 Wawa or Visa Gift Card will be given when the survey is complete.
$20 Wawa or Visa Gift Card will be given when the interview is complete.

- **Note $20 Wawa or Visa Gift Card is in addition to the $10 gift card**

To Access Survey
Web Address:
https://bit.ly/2NNtC0E
Scan QR Code

Contact:
Lois Rajcan MSN, RN, CRNI
Principal Researcher
PhD Candidate
Duquesne University School of Nursing
Email: rajcanl@duq.edu Phone:

Appendix H
Interview Consent

DUQUESNE UNIVERSITY
600 FORBES AVENUE ♦ PITTSBURGH, PA 15282

CONSENT TO PARTICIPATE IN A RESEARCH STUDY

TITLE:
Patient-nurse trust and the oncology patient with a totally implantable vascular access port device

INVESTIGATOR:
Lois Rajcan MSN, RN, CRNI, PhD candidate. Duquesne University School of Nursing. Phone: Email: rajcanl@duq.edu

ADVISOR:
Joan Such Lockhart, PhD, RN, CNE, ANEF, FAAN. Professor at Duquesne University School of Nursing. Phone: 412-396-6540. Email: lockhart@duq.edu

SOURCE OF SUPPORT:
This study is part of completing a doctoral degree in Nursing at Duquesne University.

STUDY OVERVIEW:
You are being asked to join in a nursing research study. A group of 72 adults with ports used for chemotherapy will be enrolled. A smaller group of 10 to 20 will be interviewed from the enrolled 72 adults. You will be given flyers with information to connect to the online consent and study survey. You will be asked to sign a separate consent if doing a talk with Lois.

PURPOSE:
This study is to obtain your opinion of nurses' actions that promote trust and quality nursing care. This research is looking at nurse actions when caring for a port.
To qualify, you must be:

1. Diagnosed with cancer.
2. Age 18 years or older.
3. Able to read, write and understand the English language.
4. Port in place greater than 1 month at the time of data collection.
5. Port used for chemotherapy infusions.
6. Port accessed at least monthly.

PARTICIPANT PROCEDURES:
You will be asked to talk to Lois about experiences with your port. The talk will take 45 to 60 minutes of your time at a location of your choice and conducted in person or by telephone. The talk will be recorded and transcribed. Personal contact information will be collected to receive compensation gift cards. These are the only requests that will be made of you.
Joining this study is voluntary. This study is not part of the care you are getting at the cancer center.
You have the right to withdraw at any point during the study for any reason and without any consequence to you, or your care.
RISKS AND BENEFITS:
This study poses no risks greater than those you come across in everyday life. There is no immediate benefit to you. Although you may not have any direct benefit in joining this study, you will have the knowledge that you are adding to the progress of nursing knowledge to assist in caring for oncology patients with ports.
Should you feel distress during the talk, we will stop and begin again as decided by you. Support will be offered to you at your request. Contact for support will be made to Marge Lange, certified oncology social worker at (484) 653-8181.
COMPENSATION:
An additional $20 Wawa or Visa gift card will be offered to you at the end of the talk with Lois. Joining this project is at no cost to you.
CONFIDENTIALITY:
Any personal information you provide will be kept private. Face to face talks will occur in a location free of being overheard or interruption. Telephone talks will occur in the private home office of the researcher. Audio recordings will be changed to written documents. A secure transcription service will be used. Written materials, audiotapes and consent forms will be stored in a locked file in the home of Lois Rajcan. All personal information you provide will be destroyed six years after the study is complete.
The study may be published or presented at professional meetings. Your identity will not be shared or known. Any publications or presentations about this research will use data that is joined with all subjects. No one will be able to learn how you responded.
HIPAA AUTHORIZATION:
By joining this study, you are giving permission to use your personal health information, and/or your medical record, and/or information that can identify you. The health information procedures in this study are HIPAA compliant. Any health information obtained will be stored by Lois Rajcan for six years after the study is finished. All personal health information will be destroyed after six years.
RIGHT TO WITHDRAW:
You are not required to join this study. You can withdraw at any time. Once the talk with Lois is finished, all transcribed data will be used in the study.

SUMMARY OF RESULTS:
A summary of the results of this study will be provided at no cost. You may request this summary from Lois Rajcan. The information provided to you will not be your individual responses, but a summary of what was learned during the research project.

FUTURE USE OF DATA:
Any information collected that can identify you will not be used for future research studies. It will not be provided to other researchers.

VOLUNTARY CONSENT:
I have read this consent form and understand what is being asked of me. I also understand that joining this study is voluntary and that I am free to withdraw at any time, for any reason without any consequences. Based on this, I certify I am willing to join this research study.

I understand that if I have any questions about joining this study, I may call Lois Rajcan at 610-913-0036, or supervising faculty Dr. Joan Such Lockhart at 412-396-6540.

If I have any questions regarding my rights and protections as a subject in this study, I can contact Dr. David Delmonico, Chair of the Duquesne University Institutional Review Board for the Protection of Human Subjects at 412.396.1886 or at irb@duq.edu.

In addition, if I have any problems, concerns and questions as a research subject, I may contact the Main Line Health Office of Research Protections at 484-476-2692 to speak to someone independent of the research team or email to mlhirb@mlhs.org.

_____ _____
Participant's Signature Date

_____ _____
Researcher's Signature Date

Appendix I

Collection of contact information online

Would you be interested in participating in an interview to discuss your experiences with the port?

- Yes, contact me for interview (if selected Qualtrics will forward to provding contact information)
- No, I do not wish to participate in interview. I will provide contact information to receive the gift card (if selected Qualtrics will forward to provding contact information)

Please provide your contact information below:
Name:
Address:
City:
State:
Postal code:
Phone number:
Social Security Number (for tax reporting purposes):

RESULTS

Manuscript #2

Oncology Patient Perspectives: Nurse Trust and Quality Nursing Care of Implantable Ports

Abstract

The purpose of this study was to understand nurses' behaviors that promoted patient trust and quality nursing care from perspectives of adult oncology patients with totally implantable vascular access port devices. Using explanatory sequential mixed-methods design, 71 participants responded to an online survey measuring trust and quality nursing care; 20 of these participants were interviewed. Average levels of trust and perception of quality nursing care were revealed. Themes of nurse attributes that facilitate patient trust, and patient perceptions of quality nursing care were also established. Findings can inform nurses to provide patient-centered interventions that facilitate patient-nurse trust during TIVAD access.

Keywords: nurse-patient relationship, oncology, trust, patient-centered care, port, totally implantable vascular access device, mixed-methods

Oncology Patient Perspectives: Nurse Trust and Quality Nursing Care of Implantable Ports

Trust is not a readily visible concept but is important for the success of the patient-nurse relationship (Charalambous et al., 2016; Johns, 1996; Radwin, Cabral, & Wilkes, 2009). Patient trust in the nurse is often fragile, and once trust in the nurse is broken, it is not easily regained (Dinc & Gastmans, 2013). The absence of trust in the patient-nurse relationship can produce emotional anguish for the patient leading to insecurity, vulnerability, and poor outcomes of health and wellness (Charalambous et al., 2016; Halldorsdottir & Hamrin, 1997; Sacks &Nelson, 2007). Totally implantable vascular access devices (TIVAD), also known as ports, are a reliable vascular access device for cancer patients receiving chemotherapy treatments (Biffi, Toro, Pozzi, & DiCarlo, 2014). Implanted under the skin, the TIVAD can be accessed and de-accessed with a needle for repeated administrations of medications, chemotherapeutic drugs, blood products, nutrients, or blood drawing for lab testing.

The Need to Explore Patient Perspectives of Nursing Care of TIVADs

Cancer survivors consistently interact with nurses during the access and care of their TIVAD for disease treatment. Patients with a TIVAD rely on the skill of nurses to identify and avoid complications such as infection of the subcutaneous port pocket, bloodstream infections, and infiltration of infusates into the surrounding tissue (Gudiol, Aguiado, & Carratala, 2016; Moore et al., 2018). Often these patients are reluctant to trust the nurse to access their port due to fear of pain during needle insertion and increased risk of infection (Kreis et al., 2007). Despite their reluctance, cancer survivors must rely on the skill of nurses to access and de-access the TIVAD to obtain treatment.

According to The Trust in Nurses Model, generating and promoting trust in the nurse requires identifying interventions which promote nursing care quality, individualized nursing care, and the patient's health status (Charalambous et al., 2016). As noted by the authors (2020), a paucity in the literature identifying nursing skills and how nurses performed those skills to facilitate patient-nurse trust exists and warrants further investigation. Accessing and caring for oncology patients with TIVADs is a nursing skill that can be observed and evaluated to provide insight of the patients' perceptions of quality nursing care and patient-nurse trust.

Purpose and Research Questions

The purpose of this study was to obtain an understanding of nurse behaviors that promote trust and quality nursing care as perceived by oncology patients with TIVADs. Research questions included: 1) What is the level of trust by oncology patients when nurses access and care for their TIVADs? 2) What is the oncology patients' level of perceived quality nursing care when nurses access and care for their TIVADs? 3) What behaviors demonstrated by nurses while caring for oncology patients' TIVADs, as reported by patients, facilitate patient-nurse trust and reflect patients' perceived level of quality nursing care?

Methods

Design

An explanatory sequential mixed-method design was used to answer the study questions (Creswell & Clark, 2018). This was comprised of two phases: 1) a quantitative online survey of oncology patients with TIVADs followed by 2) interviews using purposively selected patients from the survey sample. Steps to attain data measures: 1) descriptive statistics to illustrate sample characteristics; 2) frequency statistics to

categorize cutoff scores for the Trust in Nurses Scale (TINS) (Radwin & Cabral, 2010) and the Oncology Patients Perspectives of Quality Nursing Care Scale (OPPQNCS) (Radwin, Alster & Rubin, 2003) as high, low, average, and irregular; 3) independent samples *t* tests, and Hedges' *g* effect size to analyze and interpret for substantial differences between gender/race with TINS/OPPQNCS scores; 4) purposefully selected interview participants using high, low, average and irregular cutoff scores of the TINS and OPPQNCS; 5) conventional content analysis (Hsieh & Shannon, 2005) to determine concepts, codes, and define meaningful categories and subcategories of the interview data; 6) reading and analyzing interview transcripts multiple times in consultation with the second author who is experienced in qualitative research to reach a consensus about key themes relating to patient-centered nurse interventions that facilitate patient-nurse trust and patients' perceived level of quality nursing care; and 7) interview-coded data compared with quantitative data as a point of data connection.

Participants, Setting, and Recruitment

Seventy-one patients from three outpatient cancer infusion centers in a large hospital system in the Northeastern United States (US) and an online breast cancer support group were enrolled in the study. To be included in the study, patients needed to be: 1) 18 years or older; 2) diagnosed with any type of cancer; 3) able to read, write, type, speak, and understand the English language; 4) have a TIVAD in place utilized for chemotherapy infusions for greater than 1 month; and 5) have the TIVAD accessed at least monthly. Phase 1, patients with TIVADs were approached by the cancer infusion center nursing staff with a flyer containing information about the study and how to access

the survey online. A referral recruitment strategy was also utilized. Phase 2 participants were recruited using purposeful data selection by the first author from Phase 1.

Measures and Tools

Patients were asked to complete three survey instruments via an online platform: a six-item investigator-designed sociodemographic tool (age, gender, race, education, TIVAD time in situ, and cancer diagnosis); the Trust in Nurses Scale (TINS) (Radwin & Cabral, 2010); and the Oncology Patients' Perception of Quality Nursing Care Scale (OPPQNCS) (Radwin, Alster & Rubin, 2003).

The TINS measure the patient's level of trust in the nurse and contains four items that address either a nursing activity or a patient feeling. Using a six-point Likert scale there is a possible total range of scores between 4 and 24. Higher total score indicate a greater level of patient trust in the nurse. Prior construct validity of the TINS was established with 187 hospitalized cancer patients; internal consistency reliability Cronbach's alpha coefficient was reported as 0.82) (Radwin & Cabral, 2010).

The 14-question OPPQNCS (Radwin, Cabral, & Wilkes, 2009) was used to measure the oncology patient's perception of quality nursing care that includes four subscales of patient-centered, interpersonal nursing interventions referred to as attributes of nursing quality care with internal consistency reliability: responsiveness (5items, $\alpha = 0.86$), individualization (3 items, $\alpha = 0.83$), coordination of care (3 items, $\alpha = 0.83$), and proficiency (3 items, $\alpha = 0.85$) (Radwin, Cabral, & Wilkes, 2009). The participant responds by using a six-point Likert-type scale. Higher total scores represent higher levels of patient-perceived quality of nursing care with a possible total range of scores between 14 and 84 (Radwin, Cabral, & Wilkes, 2009).

Patients who completed the qualitative portion (Phase 2) of the study were interviewed using semi-structured questions designed by the first author to obtain perspectives of nursing interventions that promoted trust and perceptions of quality nursing (Table 1).

Procedure and Analysis

Study procedures were approved by the Institutional Review Board from the investigators' institution and a hospital system in the Northeastern US. Patients provided voluntary consent via an online form presented in a Qualtrics XM study link (Qualtrics International Inc, 2018). After completing the online five-question screening tool to confirm eligibility based on inclusion criteria, patients were directed to complete the consent, sociodemographic, TINS, and OPPQNCS survey instruments. After completing the surveys, patients were asked to provide contact information if they were interested in completing an interview (Phase 2).

Phase 1 participants were placed in categories based on TINS and OPPQNCS cutoff scores of high, average, low, and irregular. These cutoff scores were used to assist in purposeful case selection variation for interview Phase 2. Maximum, average, or minimal variations in age, gender, and TIVAD time in situ were noted and used to assist in the comparability between/among patients (Table 2). Phase 1quantitative data analyses were performed using SPSS 26 statistical software (IBM Corporation, 2019).

Phase 2 interviews were audio recorded and took place in person or by telephone with the first author at a location and time at the patient's convenience. Interviews continued until no new identification of information (data saturation) was observed (Creswell & Clark, 2018). Data saturation was obtained with 18 participants with 2

additional interviews conducted. NVivo voice-recognition transcription service and NVivo 12 plus software (QSR International, 2018) was used to transcribe and analyze the interview data. A gift card compensation was provided to patients at the completion of Phase 1, and an additional gift card if they were selected for and completed Phase 2. Data collection for Phase 1 and Phase 2 took place between August and December 2019. (Creswell & Plano Clark, 2018)

Results

Participants

Phase 1 quantitative analysis included 71 patients ranging in age from 20-91 years (M = 60.66, SD = 12.87). Most participants (43%) were female with a breast cancer diagnosis. The majority had a high school education (96%) and White (78%). TIVAD time in situ ranged from 1-108 months (M = 13.21, SD = 17.96) (Table 2).

Phase 2 qualitative analysis consisted of 20 patients who were purposefully selected from Phase 1. Ages ranged from 36 - 80 years (M = 58.3, SD =12.39) with the greater number of participants being female (n=15), White (85%), and high school graduates (90%). The common cancer diagnoses were breast (n=12, 60%) and Lung (n=2, 10%), with remaining diagnosis pancreatic, multiple myeloma, colon, liver chronic lymphocytic leukemia, and renal cancers. TIVAD time in situ ranged from 1-108 months (M = 19.85, SD = 27.20) (Table 2).

Significant statistical differences were not noted between trust in the nurse and gender ($t(69) = .333$, $P = .740$) or trust in the nurse and race ($t(64) = 1.074$, $P = .112$). Perceived quality of nursing care and gender were not noted for statistical differences ($t(69) = .263$, $P = .793$). Although statistical significance was not quite reached, the large

effect size ($t(64) = 1.96$, $P = .055$, ES = 0.67) of perceived nursing care quality of TIVADs between White and Black patients suggests that the perceived level of quality nursing care is not the same.

Research Questions One and Two

Cutoff score categories were utilized to answer research questions one and two. Overall results of the 71 summed TINS scores were determined to be average levels of trust in the nurse (research question one) with $M = 22.76$ (SD =1.9). Internal consistency reliability for the TINS measurement tool using the alpha coefficient was $\alpha = 0.69$. In response to research question two, the 71 summed OPPQNCS scores were also determined to be an average level of patient perception of receiving quality nursing care with $M = 74.58$ (SD = 7.8). The internal consistency reliability for the OPPQNCS subscales were as follows: 1) responsiveness (5 items, $\alpha = 0.89$); 2) individualization (3 items, $\alpha = 0.69$); 3) coordination of care (3 items, $\alpha = 0.63$); and 4) proficiency (3 items, $\alpha = 0.68$).

Research Question Three

Conventional content analysis (Hsieh & Shannon, 2005) of the qualitative data resulted in the identification of 2 major themes: 1) nurse attributes that facilitate patient trust in the nurse to access and care for the TIVAD; and 2) patient perceptions of quality nursing care of the TIVAD. Table 3 further illustrates the themes along with a summary of the categories, and subcategories.

Theme One: Nurse Attributes that Facilitate Patient Trust in TIVAD Care

All 20 Phase 2 patients related three nurse attributes that facilitated patient-nurse trust including: 1) psychomotor skills; 2) communication skills; and 3) attitudes. Most

patients (n = 15, 75%) mentioned the psychomotor skills of the nurse to be the most important attribute that facilitated trust in the nurse when accessing and caring for their TIVAD. This included nurse activities such as maintaining cleanliness, taking time to locate the TIVAD prior to needle access, using a quick needle insertion technique, and conveying prior experience with TIVAD access. As one patient shared:

> "…the nurse is feeling around very, very gently to find the spot to access the port. The nurse is wearing gloves, and it [port area] is cleaned multiple times with special antiseptic-coated swabs… Then the needle goes into the core of the port with one quick movement" (patient 15).

Patients quickly identified those nurses with frequent experience accessing TIVADs by the way they were able to "carry on a conversation" during TIVAD access as if it was "second nature" (patients 4 and 13). Conversely, skills that did not facilitate trust included: lack of cleanliness, poor adeptness in locating the TIVAD prior to access, and a hesitant slow needle insertion into the core of the TIVAD (patients 13, 16, and 17).

The second attribute, communication skill of the nurse, included conveying pleasantries and being informative (n = 10, 50%). Pleasantry was viewed as a skillful approach by the nurse to reassure and distract the patient when accessing the TIVAD. Trust was facilitated when nurses used a "reassuring voice, almost like the way a mother or grandmother would speak to a child" (patient 9) and as described by another patient, "… they [the nurses] are pleasant and chatty to take your mind off the TIVAD access" (patient 14). The informative style of nurse communication clearly specified to the patient of what was happening, step by step. This approach provided the patient with a feeling of "confidence" when the nurse accessed the TIVAD (patient 10).The most

frequent approach noted by patients (n = 4, 20%) was the use of the 1-2-3 count as related by patient 12:

"The nurses will say, 'I'm going to poke you on the count of 3'. They [the nurses] count, 1-2-3 and on 3 I take a deep breath and the needle goes in the port."

In the third attribute, patients judged nurse trustworthiness based on the attitude of the nurse (n = 12, 60%). Specifically, nurses who conveyed an attitude of being caring, humorous, confident, and approachable. Caring was an attitude that inspired patients to trust the nurse to care and access their TIVAD, as expressed by a patient who stated, "The nurse attitude that causes me to trust them to access my port is the nurse that approaches with an attitude of 'I'm here to help you'" (patient 16).

A nurse's use of humor seemed to release tension that patients experienced during a difficult TIVAD access. As patient 2 expressed, "Whenever the nurses have a difficult time locating the sweet spot of my port, the nurses use humor to ease my anxiety." Similarly, confidence or a lack of confidence of the nurse was highlighted by five patients as an influencing factor in trusting the nurse to access their TIVADs. For example, patient 4 stated, "I never get the feeling that she's afraid or fumbles around with the supplies to access the port." Another patient noted how a nurse's movements influenced his trust, "…when [the nurse's] movements seem uncertain and seem to lack organization with the tools in the basket" (patient 13).

The approachability of the nurse was an attribute that a few patients (n = 5, 25%) identified in the narratives. A positive example of an approachable nurse included, "Tell the patient that if you need anything just holler even if I [the nurse] look busy, call me anyway" (patient 8). Conversely, a lack of approachability and its impact on the patient

was also described, “When the nurse has an attitude that is resistant to listening to me and what I’ve been going through in the last months, it causes me to not trust [the nurse]” (patient 18).

Theme 2: Patient Perceptions of Quality Nursing Care of the TIVAD

In this second theme, almost all Phase 2 patients (n = 15, 75%) described patient-centered actions by the nurse that they perceived as examples of receiving quality nursing care. This theme included three categories that reflected specific nurse actions: 1) responsive to TIVAD needs; 2) treats the patient as unique, and 3) demonstrates knowledge of the TIVAD. In the first action, responsive to patient TIVAD needs, 10 patients felt that the nurse was able to meet their needs related to their TIVAD in an efficient and appropriate manner. How a nurse responded to TIVAD problems was related by four patients as depicting quality nursing care that inspired trust in the nurse. As one patient shared:

> “The needle in my port fell out one time during one of the chemos. They [the nurses] rectified it and made sure everything was changed over to new sterile stuff. After that experience I trust those nurses (patient 15).”

The problem of a non-functioning TIVAD and the responsiveness of the nurse in addressing this problem was important, as recounted by patient 18:

“…It [port] would take the flush in but it wouldn't send anything back like blood return for my labs. They [the nurses] were right on it … The nurses sent me to get an X-ray to make sure it was not blocked or anything.”

Patients also reported the importance of nurses’ responsiveness to their experiencing discomfort such as pain and/or anxiety during TIVAD access. Several

patients (n = 6, 40%) expressed, “I like when the nurse takes that extra step of taking my feelings and anxiety into account and doing what they can to make it [needle access] bearable” (participant 14).

Physical discomfort of the needle entering the TIVAD is of great concern for patients (n = 6, 40%) as one patient stated:

> “The most important thing to me when accessing the port is to make sure the numbing agent is sufficient. I want the nurse to ask me, ‘Can you feel this’? or ‘Do you want me to use more numbing agent?” (patient 5).

Another patient provided a different opinion regarding her comfort during TIVAD needle access related to allowing the antiseptic to dry, “It's interesting some of the nurses swab the [TIVAD] area first and let it air dry because they seem to know that accessing the port when the antiseptic is still wet on my skin stings me for a good while after the needle goes in” (patient 20). Nurse responsiveness to patient questions was important and considered a key aspect of receiving quality nursing care, as one patient mentioned, “…when nurses answer my questions, they make me feel secure” (patient 14).

The second category, the nurse treats the patient as unique, describes patients’ perceptions of receiving individualized nursing care based on their personal characteristics. Nine patients (60%) shared how important it was for nurses to treat them as unique individuals:

> “They [nurses] usually remember [which side my port is on] … I really don’t expect the nurses to remember which side the port is on” (patient 15).

Also noted was the feeling of personalization by patient 20, “I want the nurse to be talking to me like a person rather than just another job to do.” This feeling was further

described by patient 18, “They [the nurses] don't look around the room and talk to other patients or nurses in the room, while accessing the port. I mean, they solely focused on me.” The nurse’s awareness of the patient’s modesty and how it may relate to accessing her TIVAD was significant to patient 16, “[the nurse] that maintains my privacy by exposing only a small portion of my chest while accessing the port is the nurse I prefer”.

In the last category, nurse knowledge, some patients (n = 8, 53%) indicated that confidence in the nurse’s knowledge and specialized certification was confirmation to them that they were receiving quality nursing care. The knowledge of the TIVAD by the nurse caused the patient to feel she was receiving quality nursing care and ultimately trusted the nurse as related by patient 11:

“Because the nurse educated me about the port before it went into my body, I trusted that nurse to take care of the port once it was in my body”.

The additional certification of the nurse in chemotherapy administration provided a level of confidence in the nurse, as one patient expressed:

> “It makes me feel more confident that they know what they’re doing and that they’re qualified to access the port” (patient 21).

Discussion

When connecting the quantitative and qualitative data, 11 out of 20 interviewed patients (55%) supported the high TINS cutoff score of 24 for trust in the nurse (Table 2). Nurse attributes that generated the highest level of trust in the nurse when accessing and caring for the TIVAD were found in two specific sub-category narratives, the informative communication skill of the nurse (n=6) and the skill of nurse cleaning the TIVAD (n=4) (Table 3). Further details of the high level of trust in the nurse to care for the TIVAD is

when the nurse simultaneously accesses the TIVAD with the psychomotor skill of "one quick movement" along with the use of "1-2-3 take a deep breath and stick" informative style of communication. This combination of skills used by the nurse was mentioned by two patients in the narratives. This finding emphasizes the combination of nurses' psychomotor and communications skills during TIVAD access facilitates high levels of trust in the nurse.

The nurses' attitude was an attribute that facilitated trust and was reported in 60% (n=12) of 20 patient interviews (Table 3). The narratives revealed a connection between the patients' perceived caring attitude of the nurse and their willingness to trust the nurse to access and care for the TIVAD. This finding is supported by prior studies (Jakobsson & Holmberg, 2011; Mok & Chiu, 2004; Ozaras & Abaan, 2016) that noted similar results in that nurse attitude influences patients' perception of nurse trustworthiness.

When connecting the QPPQNCS high cutoff scores (83-84) with patient narratives, few patients (n=2, 13%) reported high levels of perception of quality nursing care of the TIVAD (Table 2). These high levels were related in the narrative sub-categories of how the TIVAD works (n=1), and specialized training (n=1). The responsiveness of the nurse demonstrated an average cutoff score and as reported 50% (n=10) of the patient interviews as patient perceptions of quality nursing care. The sub-category, TIVAD discomfort was also noted to have average cutoff OPPQNCS score suggesting that managing needle insertion pain is an expectation on the part of the patient and is perceived as receiving quality nursing care of the TIVAD. Therefore, nurses should provide needle insertion pain management as a standard of care when accessing the TIVAD.

Individualization of patient care related to accessing the TIVAD was noted to be categorized in the average cutoff OPPQNCS scores. As reported in the narrative category nurse treats the patient as unique (n=9, 45%), when the nurse remembered TIVAD specifics unique to that patient such as location, prior problems, and modesty preferences, patients perceived receiving quality nursing care. Also, when nurses conveyed their knowledge of the TIVAD during pre-surgical education appointments, patients viewed this instruction as receiving quality nursing care, and subsequently trusted their nurses to access and care for their TIVAD during infusions. This finding is consistent with the theoretical framework used to guide this study relative to the assumption that quality nursing care directly influences trust in the nurse.

The significance of nurses obtaining professional specialty certification, as reported in the patient narratives, was an unexpected finding. Narratives reveal that patients notice additional professional nurse certification and equate those credentials with receiving quality nursing care. This suggests that obtaining such certification is a nursing intervention that may demonstrate to patients the nurse's commitment to provide quality nursing care and, in turn, influence patient-nurse trust.

The overall quantitative findings of this study reported average levels of trust in the nurse and average levels of perceptions of quality nursing care by oncology patients when nurses accessed and cared for their TIVADs (N=71). These findings differ from previous studies (Charalambous et al., 2016; Ozaras & Abaan, 2016; Stolt et al., 2016) that reported high levels of trust in the nurse and perceived quality nursing care. A possible explanation for different levels of trust and perceived quality of nursing care is the specialized population sampled in this study. Previous studies reporting high levels of

TINS and OPPQNCS scores utilized an all-inclusive oncology patient population in outpatient and hospital environments, whereas this study focused exclusively on the care and access of the oncology patient with a TIVAD. The meaningful effect size (ES = 0.67) between perceived nursing care quality and race (White and Black) may have influenced the reported level of quality nursing care. Lastly, previous studies utilizing the TINS and OPPQNCS that reported high levels of trust and perceived quality, utilized versions with a 5-point Likert response scale. The 6-point Likert response scale utilized in this study provided the participant with a greater number of negative Likert responses, thereby providing an opportunity to lower the overall mean of the findings.

The strengths of this study include the mixed-method design that provided patient perspectives to further explain measurement results. The identification of patient-centered nursing interventions and skills may enable future studies to build upon these findings as they relate to patient satisfaction and wellness. The study findings, however, should be viewed cautiously considering several limitations. First, the survey questions were originally used to measure trust and quality in general nursing situations, not specific skills of nursing care such as TIVAD access and care. Thus, the responses may not have provided an accurate representation of trust in the nurse and perceptions of quality nursing care related to TIVADs. Second, because 78% of the online surveys were completed by patients receiving care in an outpatient infusion center where nurses were present, they may have felt compelled to answer favorably. Finally, the results of the levels of trust and perceived quality of nursing care should be interpreted with caution as 43% (n = 31) of the sample were females with breast cancer. The greater number of female breast cancer participants was attributed to the referral recruitment strategy when

the flyer was posted to an online breast cancer support group by a study participant. It is viewed that this additional recruitment strategy did not negatively influenced this study, as noted by the small effect sizes (TINS ES = 0.09 and OPPQNCS ES = 0.07). Rather, it is reasoned that these participants strengthened the study by increasing the sample size by 16% (n = 12) and expanding the geographical location of participants. Future studies using online support group recruitment strategies should attempt to include participants with varied diagnoses, diverse culture/race/ethnicities, and equivalent number of males and females to avoid potential bias and skewed findings.

Study findings suggest the importance of combining specific patient-centered nursing interventions and communication skills to facilitate high levels of patient trust in the nurse and perceptions of quality nursing care when accessing and caring for a TIVAD. The qualitative themes and sub-themes provide detailed insight beyond the current theoretical concepts of trust in the nurse as reported in current literature and will enrich the current practice of nurses by providing a basis to pursue and implement individualized care practices for patients with TIVADs.

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Table 1. Semi-Structured Interview Questions

Question 1: Tell me about your thoughts on trust. Prompts: For example, what are your thoughts on trusting the nurse when accessing your TIVAD/ port?
Question 2: How do you see the role of the nurse when caring for/accessing your TIVAD/ port? Prompts: Would you walk me through the process of the nurse accessing your TIVAD/ port?
Question 3: What actions by the nurse when caring for/accessing your TIVAD/port are important to you? Prompts: What actions of the nurse cause you to trust the nurse to access your TIVAD/port?
Question 4: Have you ever had an experience where you did not trust the nurse to care for/access your TIVAD/port? Prompts: Include other encounters with nurses such as CAT Scan, MRI, and hospital stays. How did you respond to the nurse you did not trust? How did that experience make you feel?
Question 5: Is there anything else you would like to share with me about trusting the nurse to care/access your TIVAD/ port?

Abbreviations: CAT, Computerized axial tomography scan; MRI, Magnetic resonance imaging

Table 2. Category Cutoffs and Demographics of Purposeful Interview Selection

	Phase 1 (N=71)	Phase 2 (N=20)
TINS[a]	High = 24 (n=39) Average = 19-23 (n=28) Low Score = 6-18 (n=4)	High = 24 (n=11) Average = 19-23 (n=8) Low Score = 6-18 (n=1)
OPPQNCS[b]	High = 84-83 (n=10) Average = 82-71 (n=44) Low = 70-14 (n=17)	High = 84-83 (n=2) Average = 82-71 (n=12) Low = 70-14 (n=6)
Irregular	High TINS and Low OPPQNCS Irregular (n=3)	High TINS and Low OPPQNCS Irregular (n=2)
Age	18-20 (n=1) 21-30 (n=0) 31-40 (n=3) 41-50 (n=7) 51-60 (n=16) 61-70 (n=26) 71-80 (n=15) 81-90 (n=2) 91-100 (n=1)	31-40 (n=2) 41-50 (n=5) 51-60 (n=5) 61-70 (n=6) 71-80 (n=2)
Gender	Female (n=53) Male (n=18)	Female (n=15) Male (n=5)
Race	White (n=56) Black (n=10) Other (n=3) Decline (n=2)	White (n=17) Black (n=3)
Situ	1-6 months (n=35) 7-12 months (n=19) >12 months (n=17)	1-6 months (n=8) 7-12 months (n=6) >12 months (n=6)
Diagnosis	Breast (n=31) Lung (n=9) Pancreatic (n=7) Colon (n=4) Vaginal/Endometrial/Uterine (n=4) Multiple Myeloma (n=3) Rectal/Anal (n=3) Lymphoma (n=2) Esophageal (n=2) Liver (n=1) Peritoneal (n=1) Renal (n=1) Mouth (n=1) Stomach (n=1) Chronic Lymphocytic Leukemia (n=1)	Breast (n=12) Lung (n=2) Pancreatic (n=1) Multiple Myeloma (n=1) Colon (n=1) Liver (n=1) Chronic Lymphocytic Leukemia (n=1) Renal (n=1)

[a] TINS possible total range of cumulative scores from 4-24

[b] OPPQNCS possible total range of cumulative scores from 14-84

Abbreviations: OPPQNCS, Oncology Patients' Perceptions of Quality Nursing Care Scale; TINS, Trust in Nurses Scale.

Table 3. Interview-Coded Data with Quantitative Data (N = 20)

Theme 1: Nurse attributes that facilitate patient trust in the nurse to access and care for the TIVAD (n=20)						
	TINS			OPPQNCS		
	High	Avg	Low	High	Avg	Low
1. Psychomotor skill of the nurse when accessing TIVAD (n=15)						
a. Skills that facilitate trust						
• Cleaning the TIVAD	n=4	n=5	n=0	-	-	-
• Taking time to access	n=2	n=1	n=0	-	-	-
• Quick needle insertion into TIVAD	n=1	n=4	n=0	-	-	-
b. Skills do not facilitate trust						
• Lack of cleanliness	n=1	n=1	n=0	-	-	-
• Lack of adeptness	n=0	n=1	n=0	-	-	-
• Hesitant needle insertion	n=0	n=1	n=0	-	-	-
c. Frequent hands-on-experience						
• Second nature	n=1	n=3	n=0	-	-	-
• Carry on conversation	n=0	n=1	n=0	-	-	-
2. Communication skill of the nurse (n=10)						
a. Pleasantries	n=2	n=0	n=0	-	-	-
b. Informative	n=6	n=2	n=0	-	-	-
3. Attitude of the nurse (n=12)						
a. Caring	n=1	n=4	n=1	-	-	-
b. Humor	n=1	n=0	n=1	-	-	-
c. Nurse confidence	n=0	n=4	n=1	-	-	-
d. Nurse is approachable	n=0	n=5	n=0	-	-	-
Theme 2: Patient perceptions of quality nursing care of the TIVAD (n=15)						
	TINS			OPPQNCS		
	High	Avg	Low	High	Avg	Low
1. Nurse is responsive to patient TIVAD needs (n=10)						
a. Port problems	-	-	-	n=0	n=3	n=1
b. Port discomfort	-	-	-	n=0	n=3	n=2
c. Questions about port	-	-	-	n=0	n=3	n=1
2. Nurse treats the patient as unique (n=9)						
a. TIVAD specifics	-	-	-	n=0	n=3	n=0
b. Know me as a person	-	-	-	n=0	n=6	n=2
3. Nurse demonstrates knowledge of TIVAD (n=8)						
a. How TIVAD works	-	-	-	n=1	n=4	n=0
b. Specialized training	-	-	-	n=1	n=2	n=1