

Networking Matters:
Exploring the Developmental Networks of Healthcare Managers and the Relationship to Job
Competency Development

by

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ABSTRACT

Given the complexity and challenges faced by healthcare organizations today, the role of a healthcare manager is an important one. Therefore, it is imperative that managers develop competencies to contribute to the sustainability and success of the healthcare organizations where they work. The purpose of this study was to examine the relationship between having a developmental network and the development of healthcare competencies for individuals working in healthcare management roles. This study involved examining the developmental network characteristics of healthcare managers, including their network size, quality, density and range and self-reported job competencies. To understand this relationship, a cross-sectional survey was conducted at a multi-site, multi-region academic medical center of individuals working in healthcare manager roles. The results did not show a relationship between developmental network characteristics and self-reported job competencies for the healthcare managers surveyed. However, the data generated on the developmental networks of healthcare managers showed that healthcare managers have large networks and receive a high amount of developmental support from their network. Additionally, their networks were moderately dense and were of low range. The results are examined and connections are made to the existing literature. The findings and implications for professional practice are discussed and recommendations for future research are explored.

DEDICATION

I dedicate this study to my family, who all did their part to help me across the finish line. To my husband, my mother and father, my aunt and my sister. Thank you for being my tribe. Also, for my boys, Westin and Calin, who have been patient and are excited that their Mom is finally done with her homework!

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CHAPTER ONE: INTRODUCTION

General Overview of the Problem

The challenges faced by healthcare institutions in this country are multi-faceted due to the high complexity of healthcare delivery, government regulation, payer reimbursement, accelerated technological change, increased competition and pressure from external groups (Agwunobi & Osborne, 2016; Begun, White, & Mosser, 2011; Huppertz, Strosberg, Burns, & Chaudhri, 2014; Payne & Leiter, 2013; Stefl, 2008). As the pace of change in healthcare continues to increase, scholars have called for new approaches to solving complex problems to improve the quality of healthcare and health outcomes (Braithwaite, Glasziou, & Westbrook, 2020). In order for healthcare organizations to rise to these challenges amidst these pressures, they must recruit, train and develop a highly competent workforce that is able to meet these challenges, specifically in the area of healthcare management (Glasberg, 2007; Stefl, 2008). Thus, the healthcare manager role and their ability to respond effectively to increasing complexity and pressures in the external environment is pivotal to the success of healthcare organizations (Landry, Stowe, & Haefner, 2012). For this reason, it is absolutely essential healthcare managers are competent within their field to meet the demands of their role (Kakemam et al., 2020).

Within the field of healthcare, the healthcare manager plays a pivotal role when it comes to the range of functions it serves and the importance of those functions to the organization's success and sustainability (Hernandez, O'Connor, & Meese, 2018). The healthcare manager sits between the administrative leaders and the frontline workers, often referred to as allied health staff, that includes physicians and other clinical roles that are providing direct patient care (Awowale, 2017; Begun et al., 2011). The healthcare manager is responsible for serving a

variety of management functions, including responsibility and decision making in the areas of budget management, resource allocation, regulatory and compliance, staffing, employee engagement and acquisition of technology (Awowale, 2017, p.61; Payne & Leiter, 2013; Vizzuzo, 2015).

Situated between administrative leadership and frontline staff, healthcare managers are responsible for cascading the organization's vision and mission into the work of their teams. Thus, the literature discusses the critical role healthcare managers play in innovation (Birken, Le, & Weiner, 2012), implementation of evidence based practices (Birken et al., 2012; Embertson, 2006), knowledge transfer (Pappas, Flaherty, & Wooldridge, 2004); information sharing (MacDonald, Bath, & Booth, 2011), quality and efficiency improvements (McAlearney, 2008), and organizational learning (Beck & Plowman, 2009). Thus, the role of the healthcare manager is a pivotal one to the success of the organization through the leadership they provide.

Given their importance to the success and viability of healthcare organizations and the complexity of the healthcare industry, it is not surprising healthcare managers face many challenges in their work. Payne and Leiter (2013) interviewed healthcare managers about the challenges they face in the context of the demands of the healthcare industry. They found managers face an abundance of challenges including resource constraints, increased complexity of government regulations and decreased autonomy. The decreased autonomy stems from over-governance due to mergers and consolidation and declining reimbursements. Additionally, healthcare managers experience tension as healthcare becomes "increasingly business-like" (Payne & Leiter, 2013, p.117) that can conflict with the professional standards of the workforce that provides care to patients.

Additionally, healthcare management as a profession is further complicated by the presence and importance of the role of clinical providers as organizational leaders. In many healthcare organizations, healthcare managers are seen as subordinate to physicians or other clinical professionals serving in leadership roles (Begun et al., 2011). The presence of both roles can result in competition for resources, lack of role clarity and a lack of autonomy for both. As mentioned previously, the healthcare industry as a whole is becoming more business-like and may be in direct or indirect conflict with the professional standards and practices that a clinician may advocate for in managing a healthcare organization (Payne & Leiter, 2013).

Researcher's Experiences

My lived experience in navigating challenges in my own career and professional development as a healthcare manager influenced and motivated me to conduct this study. My professional development and career advancement greatly benefitted from the developmental assistance of a few key developers (mentors) early on in my career. With the support and guidance of these developers, I was able to identify opportunities for professional growth and development. Similarly to what is documented in the literature, these developers offered career guidance, role modeling and provided social-emotional support that enabled me to overcome professional challenges (Kram, 1985; Chau, Walz, & Gardner, 1992; Higgins & Thomas, 2005; Dobrow Riza & Higgins, 2019). More than once, these developers provided sponsorship by advocating for my advancement and providing testimonials of my skills and abilities to those in charge of making hiring decisions (Kram, 1985; Allen, Eby, Poet, Lentz, & Lima, 2004). Most importantly from my perspective, they contributed to greater job satisfaction and greater organizational commitment. Such outcomes have also been documented in the literature (Lentz & Allen, 2009). These relationships enabled me to develop professionally, from one

developmental stage to the next and ensured that I did not plateau in my career. According to Chandler and Kram (2005), developers are able to assist protégés with advancing from one developmental stage to the next. My experience aligns with the findings of Lentz and Allen (2009), who reported that the receipt of developmental assistance mitigates job plateauing.

In exchange for the developmental assistance I received, I also provided assistance and support to my developers by sharing knowledge, ideas and new ways of working with them. This strengthened our bond and the quality of our connection, through the mutuality of the relationship (Dobrow, Murphy, Chandler, & Kram, 2012). Dobrow et al. (2012) explain relationships that have mutuality are those where “both parties are better off as a result of the relationship, are aware of their impact on each other, and understand one another’s intentions” (p.215).

Oftentimes, the developmental relationships that were most important to me were those I sought out and cultivated with my peers. For years, mentoring scholars have acknowledged the benefits and importance of peer mentoring relationships in contrast to traditional mentoring relationships between a protege and someone more senior in experience or position (Kram, 1988; Bryant, 2005). In my experience, I have learned just as much from developmental relationships with my peers as I have with those developers who were senior to me by job position or experience. Scholars recognize peer mentoring relationships are an effective means of sharing job related information and can generate new knowledge (Bryant & Terborg, 2008). In alignment with this, I have found that I was able to more readily obtain job-related information from my peers than from developers who were senior. I think this is because we were better able to relate to each other and the current challenges we were facing due to being at similar developmental stages (Chandler & Kram, 2005). Additionally, I was able to generate

new knowledge by comparing experiences and information with peers to brainstorm new approaches to solving problems. This practice is supported in the literature on peer mentoring and knowledge sharing (Bryant, 2005).

As I took on roles of increasing responsibility and complexity, I sought out relationships with multiple developers, in recognition that the more assistance I could receive, the more that would benefit my career. The idea “*more is better*,” when it comes to developmental assistance, is supported by the literature (Higgins, 2007; Kram & Higgins, 2007; Montgomery, 2017). Montgomery (2017) argues that it is unrealistic to expect that one mentoring relationship will fulfill all of the developmental needs for a protege, given the range of mentoring functions and associated outcomes that have been documented by researchers (Chao, Walz, & Gardner, 1992; Eby, Allen, Evans, Ng & DuBois, 2008; Lentz & Allen, 2009).

Recognizing this, I began to seek out and identify opportunities to find developers willing to meet with me and provide career support. After meeting with developers across different domains, I realized that having a group of developers was advantageous to my professional development and offered me different types of support to meet my range of needs. De Janasz, Sullivan, & Whiting (2003) refer to this as having a “portfolio” of developers who bring a range of expertise to assist the protege in their developmental needs (p.83).

Additionally, I have found that having a portfolio of developers strengthened the quality of the support I received. For example, I could cross check the advice and experience offered by one developer with that of another. This gave me insight into how context changes decision making and offered me different perspectives. Finally, when one developer gave me advice, guidance or support that was not helpful to me, I could easily turn to another developer. In this

way, having a network or “portfolio” of developers protected me from what DeCastro, Sambuco, Ubel, Stewart, & Jagsi. (2013) describe as “inadequate mentoring” (p.7).

Now that I am mid-career, I recognize the importance of playing an active role in shaping my developmental network to maximize the benefit to my career and job competency as a healthcare manager. Murphy & Kram (2010) refer to developmental networks as being egocentric because the network is developed and shaped by the individual. However, Kram & Higgins (2007) assert that this is a continually evolving process which unfolds based on changing developmental needs making it appropriate to be an egocentric process. In my experience, my developmental needs change based on my own assessment of strengths and weaknesses relative to the expectations of my job role, the needs of the organization and my goals for professional development and career growth. Additionally, this approach aligns with the recommendations of researchers who advise proteges to cultivate a developmental network that is based on understanding oneself and one’s developmental needs (Kram & Higgins, 2007; Shen, Cotton & Kram, 2005; Kram & Higgins, 2007). For example, Kram & Higgins (2007) refer to this as an “opportunity audit” (p.4). Throughout my career, I have conducted many opportunity audits and sought to fill gaps in my professional development needs in order to remain effective in my role or to stay on track in my professional development or career goals.

Reflecting back on my experience, I have learned that a key ingredient to career success is having a developmental mentoring network and drawing on those relationships to obtain resources and knowledge that will aid in career development. The importance of having a developmental network is supported in the literature and empirical evidence has demonstrated its viability as a career development strategy and practice. For example, Srivasta studied the developmental networks of lawyers and found that the composition of an individual’s network

was correlated to their longer term career outcomes (2015, p.240). Given these findings, Srivasta stressed the importance of investing in your career early on by developing a network that includes many individuals (2015, p.240).

Given my own success in building and leveraging a developmental network to advance job competencies, I aimed to establish a relationship between having a developmental network and job competency development for healthcare managers. There is significant evidence on developmental relationships and the assistance that developers can provide to further job related outcomes. Additionally, research on developmental networks has shown that more developmental assistance, coming from a variety of mentors, is positively related to several job outcomes (Higgins & Thomas, 2001; Higgins, Dobrow & Roloff, 2010). In combination, this suggests that having a developmental network would be beneficial for healthcare managers to support job competency development in their field. Establishing this relationship could give impetus to future research to further unpack the relationship between developmental networks and job competencies for healthcare managers. Subsequent research could examine how network intervention shapes network characteristics, such as size, density, range and quality (Dobrow & Higgins, 2005; Srivastava, 2015). Additionally, quasi-experimental studies could study network intervention to evaluate the effectiveness of organization's efforts to support their healthcare managers in developing and shaping their networks.

Problem Statement

Given the challenges faced by the healthcare industry, the importance of healthcare managers and the complexities they face in their roles, it is vital that healthcare managers develop competency in performing their roles (Huppertz et al., 2014; Stefl, 2008). Several competency models and frameworks have been developed by researchers and professional

groups within the field to assess healthcare manager job competencies (Garman, Standish, & Waino, 2020; Huppertz et al., 2014; Stefl, 2008, Weiszbrod, 2020). These competency models group the competencies of healthcare managers across a variety of domains, such as leadership, communication, business skills and knowledge and healthcare knowledge (Garman et al., 2020; Huppertz et al., 2014; Stefl, 2008, Weiszbrod, 2020).

Thus, competency models can be used by both healthcare organizations and individual healthcare managers for assessing competencies. The assessment of job competencies using these models and frameworks can then be used as a measurement of the effectiveness of various professional development efforts and programs used by individuals and organizations to advance competencies. These include informal and formal mentoring programs, continuing education and the use of developmental and professional networks (Garman & Scribner, 2011).

The use of mentoring as a leadership development tool is established in the literature and has been empirically studied as a developmental tool for healthcare managers (Finney, MacDougall & O'Neill, 2012; Olson, Prybil & Hilber 2004; Rubens & Halperin, 1996). The provision of developmental assistance by a mentor or developer can be used to develop competencies in areas where healthcare managers need to be effective to improve organizational performance (Edwards et al., 2015; Finney et al., 2012; Hartman & Crow, 2002; Koberg, Boss & Goodman, 1998) and obtain competitive advantage (Olson et al., 2004). Healthcare executives and organizations also recognize mentoring as a developmental tool that can be used by organizations to develop future leaders in healthcare (Flaig, Alam, Huynh, Reid-Hector & Heuer, 2020; Hartman & Crow, 2002, Olson et al., 2004).

Researchers have called for the use of experiential learning opportunities for healthcare managers that are based on their needs and supported by a mentor (Finney et al., 2012; Warden

& Griffith, 2001). Practitioners in the field join researchers in calling for these learning opportunities. This is supported by practitioners in the field, with healthcare senior administrators having long ago recognized the value of mentoring junior administrators to support knowledge sharing and experience that is specific to the organizational context (Finley, Ivanitskaya & Kennedy, 2007).

Based on the premise of “the more mentoring the better”, several researchers have explored and studied the developmental networks of individuals (Dobrow Riza & Higgins, 2019; Higgins & Thomas, 2005; Higgins & Kram, 2001). According to the literature, a developmental network is defined as a group of individuals that “the protege names as taking an active interest in and action to advance the proteges career by providing developmental assistance” (Higgins & Kram, 2001, p. 268), including varying amounts of career and psychosocial support (Kram, 1985; Dobrow et al., 2012). The developers can be peer mentors (Kram, 1985), supervisors (Haggard, Dougherty, Turban, & Wilbanks, 2011; Yip & Kram, 2015) and those inside and outside the organization (Haggard et al., 2011). Additionally, the developers can include family, friends, or individuals from other social groups (Dobrow et al., 2012, p.214).

Researchers argue that having a developmental network is akin to having your own “personal board of directors” (Shen et al., 2015), who can advise the protege (healthcare manager). Thus, the protege benefits and learns from the multiple perspectives, backgrounds and experience of the “board” as they continually evolve their breadth of knowledge and skill sets (De Janasz et al., 2003). Additionally, having more than one mentor, or a variety of mentors, protects the protege from “inadequate mentoring” (DeCastro, Sambuco, UBel, Stewart & Jagsi, 2013, p.7).

Given the challenges faced by healthcare managers due to the complexities of the industry, the challenges of their profession and the use of mentoring as a developmental tool, it is reasonable to wonder if having a developmental network would benefit job competency development for them. Several studies have documented the positive relationship between having a developmental network and job attitudes (Van Emmerick, 2004; Higgins & Thomas, 2001) and job outcomes (Higgins & Thomas, 2004) and career success (De Janasz et al., 2003; Higgins & Thomas, 2001). Therefore, empirical study into whether a relationship exists between the developmental networks of healthcare managers and job competency development is warranted. Knowing this would provide support for the use of developmental networks as a means of competency development. This would give impetus into further research to examine the relationship further in order to better understand how developmental networks foster job competency development. Additionally, practitioners and healthcare managers would benefit from knowing how changes in the network influences outcomes. This information could be used by individuals and organizations to implement interventions that were effective in supporting and fostering the developmental networks of healthcare managers for the purposes of competency development. This would ultimately further the profession of healthcare management and the healthcare manager's contributions to the effectiveness of the healthcare organization, its success and competitive advantage.

Purpose of the Study

The purpose of this quantitative study was to better understand the relationship between having a developmental mentoring network and the development of job competencies for healthcare managers working in healthcare management. This relationship was examined by asking healthcare managers to complete a web-based questionnaire to gather data on the size,

range, density and quality of their developmental networks. Additionally, they were asked to complete a self-assessment through a web-based questionnaire of their job competencies within the two competency domains of leadership and communications. The characteristics of the healthcare manager's developmental networks were correlated with their job competency levels to determine the strength and direction of the relationship between the two. The aim of the study was to establish a relationship between having a developmental network and job competencies for healthcare managers to provide information and new direction for future studies on the topic.

Importance of the Study

Although the importance of healthcare manager competency to the success of healthcare organizations is well recognized (Crowe et al., 2017; Guo, 2003; Hernandez et al., 2018; Shipton, Armstrong, West & Dawson, 2008; Vainieri, Ferre, Giacomelli & Nuti, 2019) and healthcare competency models exist (Stefl, 2008; Calhoun et al., 2009; Garman & Scribner, 2011), little is known about what developmental tools are most effective for competency development. Scholars have examined the benefits that having a developmental network provides for a protege in terms of offering greater amounts of developmental assistance (Dobrow Riza & Higgins, 2019), information from a variety of developers across varied contexts (Higgins and Kram, 2001) and job outcomes (Higgins & Thomas, 2001; Higgins et al., 2010). However, there is a paucity of research that specifically explores the effects of having a developmental network on job competency development for healthcare managers. Only one scholarly article was found that examined the relationship between having more than one mentor and job competency development for managers (Edwards et al., 2015). Therefore, there is much opportunity to add to the literature on this topic.

Research Questions

This study centers on a primary research question. This question focuses on the relationship between having a developmental network and the development of job competencies for healthcare managers, from their perspectives. The developmental network typology posited by Higgins and Kram (2001) provided the framework for the development of this question:

Research Question: For healthcare managers, what is the relationship between self-reported job competency development and the quality, size, density, and range of the developmental network?

Definition of Terms

Healthcare Manager - The healthcare manager is positioned within the organizational hierarchy between senior leadership and other staff, such as clinicians and allied health staff who have direct interaction with patients (Awowale, 2017). They perform a range of management functions including responsibility and decision making in the areas of budget management, strategic planning, resource allocation, staffing, employee engagement and acquisition of technology (Awowale, 2017, p.61; Vizzuso, 2015).

Healthcare Management - Within the healthcare industry, healthcare management is defined as “the process of accomplishing predetermined objectives through the effective use of human, financial, and technical resources” (Banaszak-Holl, Nembhard, Taylor, & Bradley, 2011, p.56).

Developer - For the purposes of this study, a developer is an individual that the protege names as taking an active interest in and action to advance the proteges career by providing developmental assistance” (Higgins & Kram, 2001, p. 268), including varying amounts of career and psychosocial support (Kram, 1985; Higgins & Thomas, 2001; Dobrow et al., 2012). These individuals may be internal or external to the workplace and may be more senior than the

protege or a peer (Higgins & Thomas, 2001). Additionally, these individuals may or may not be the protege's immediate supervisor (Haggard et al., 2011). The developer cannot be someone who is providing developmental assistance to the protege without them being aware of it (Higgins & Kram, 2001). Within the literature on developmental networks, the term "developer" is used to describe individuals who are providing developmental assistance (Murphy & Kram, 2010). Whereas, in the traditional mentoring literature, the term "mentor" is used (Kram, 1985; Haggard et al., 2011). Given that this study sought to examine the developmental networks of healthcare managers, the term "developer" was used throughout the study, consistent with existing research on developmental networks (Murphy & Kram, 2010).

Protege - The individual who is receiving developmental support in the form of career related assistance and psychosocial support from a developer (Kram, 1985; Higgins & Kram, 2001; Dobrow et al., 2012).

Developmental Assistance - Amongst mentoring scholars, "developmental assistance/support" is used interchangeably with "mentoring support" (Haggard et al., 2011) and are measured using standard instruments, such as the MFQ-9 questionnaire (Scandura, 2004). Within the literature on developmental networks, the term "developmental assistance" is used to describe the provision of mentoring support across the various mentoring functions (Murphy and Kram, 2010; Higgins, Dobrow, & Roloff, 2010). The mentoring functions are the types of support that are provided to the protege by the developer (Murphy & Kram, 2010; Higgins et al., 2010).

Developmental Network - A group of individuals that "the protege names as taking an active interest in and action to advance the proteges career by providing developmental assistance" (Higgins & Kram, 2001, p. 268), including varying amounts of career and psychosocial support (Kram, 1985; Dobrow et al., 2012). The developers can be peer mentors (Kram, 1985),

supervisors (Haggard et al, 2011; Yip & Kram, 2015) and those inside and outside the organization (Haggard et al., 2011). Additionally, the developers can include family, friends, or individuals from other social groups (Dobrow et al., 2012, p.214).

Developmental Network Size - One of four developmental network characteristics examined in this study, network size is a count of the number of developers that a protege names as being influential at a point in time (Dobrow et al., 2019; Higgins & Kram, 2001).

Developmental Network Range - Network range refers to the variation in what primary social arena the developers belong to where they know the protege from (Higgins & Kram, 2001). The network range of a developmental network is calculated by first determining what social group the developer belongs to along with the protege (healthcare manager). This is determined for each developer. Then, then the number of unique social arenas amongst the developers in the network is counted to determine the network range. The types of social arenas that were included in this study are work, family, school, community group, professional organization, and other (Appendix A).

Developmental Network Quality - Network quality is a measure of the amount of developmental assistance that is provided by the developer to the protege. As identified by Kram (1985), developmental assistance consists of two types of support, psychosocial and career related. In comparing developmental relationships to each other, the type and amount of developmental assistance that is provided varies in terms of amount and type (Kram, 1985; Higgins et al., 2010).

Developmental Network Density - Network density is a measure of how many of the developers in an individual protege's network know each other (Higgins & Kram, 2001). For example, a network that consists of developers who all know each other would have a very high

density. Whereas, a network that consists of developers who do not know each other would have a very low density.

Conceptual Framework

The conceptual framework for this study centered on examining the developmental network characteristics of healthcare managers and their relationship to healthcare manager competencies. This study aimed to examine the developmental network characteristics of size, diversity, range and content. To do this, the developmental network typology originally posited by Kram & Higgins (2001) was utilized to examine network size, range and diversity. In addition to these three characteristics, developmental network content was examined using the typology of mentoring functions that was originally introduced by Kram (1985) and adopted by numerous mentoring scholars (Higgins & Kram, 2001; Higgins & Thomas, 2005; Dobrow Riza & Higgins, 2019) since. Finally, the American College of Healthcare Executives 2021 Competency Framework was utilized to examine the professional competencies of healthcare managers (ACHE, 2021).

Developmental Network Typology

In their seminal work on developmental networks, Higgins and Kram (2001) introduced a typology for studying developmental networks that has been utilized by scholars in subsequent studies (DeCastro et al., 2013; Seely, Kram, & Emans, 2015). Higgins and Kram (2001) developed their typology based on social network theory and proposed that developmental networks should be examined based on the two dimensions of diversity and strength. They used these two dimensions to identify four types of developmental networks: entrepreneurial, opportunistic, traditional and receptive (Higgins & Kram, p. 270). Higgins and Kram noted that an individual's developmental network does not always fall squarely within

one of these network types. Rather, they explain that the dimensions in which the typology is built on are “continuous rather than dichotomous dimensions“ (p.270).

The entrepreneurial network has both high diversity and high range (Higgins & Kram, 2011). In this network, the developers come from many different social groups and that bring “different sources of information” (p.271). In addition to being information rich, these proteges benefit from the strength of ties in that developers are motivated to support them. In entrepreneurial networks, the developer may benefit from information gained by the protege through their other relationships. In this way, the protege is an information broker of sorts between developers who were otherwise not connected.

In contrast to entrepreneurial networks, opportunistic networks differ in the strength of their ties, while remaining high in network diversity (Higgins & Kram, 2001). In these types of networks, the protege may have made connections with multiple developers from different social groups. However, they are passive in cultivating the relationship and do not reciprocate in order to develop the relationships. For example, they are willing to receive assistance when offered but are not proactive in seeking assistance. Unlike with entrepreneurial networks, they do not reciprocate by sharing information to strengthen mutuality and ties with developers.

The traditional developmental network is most similar to what scholars have defined as traditional mentoring that is based on having a strong tie relationship with a primary developer (Higgins & Kram, 2001). Although these networks tend to be small they likely consist of more than one relationship. However, these developer relationships are likely to be from the same social system. Therefore, the protege benefits from the strength of the relationship in terms of assistance provided, mutuality and reciprocity between the pair. In contrast to entrepreneurial and opportunistic networks, traditional networks do not offer the protege information from a

variety of sources because the developers come from the same social system. Thus, it is more likely that the information and types of support that the protege receives is more redundant.

In comparison to the opportunistic network, the receptive network also exhibits weak ties but does not have a high range amongst the developers (Higgins & Kram, 2001). In this network, the developers are from the same social system. Thus, this network is the most passive and has the most redundant information compared to the other three. In this network, the protege is willing to receive assistance from developers but does not proactively seek assistance and intentionally cultivate the relationships. Therefore, this network offers the least benefits to the protege and to the developer in terms of mutuality of support and information.

Developmental Network Content

Developmental network content is viewed in terms of the amount and type of developmental support, referred to as mentoring functions (Kram, 1985), that are provided to the protege. In her seminal work, Kram identified two categories of mentoring functions, career related support and psychosocial support. Subsequently, other researchers have validated this construct through empirical study (Scandura & Ragins, 1993; Pellegrini & Scandura, 2005; Hu, 2007). Researchers have developed instruments for measuring the type and amount of developmental assistance that is provided, including those used by Castro, Scandura, and Williams (2004), Higgins and Thomas (2001) and Dobrow Riza and Higgins (2019).

Healthcare Executive Competency Assessment Tool

The 2021 American College of Healthcare Executives (ACHE) Competencies Assessment Tool (American College of Healthcare Executives [ACHE], 2021) is a self-assessment tool for measuring the job competencies of healthcare executives and managers. This tool is updated annually and is made publicly available by the ACHE, a professional

association within the field of healthcare management (ACHE, 2021). This tool was developed in alignment with the Health Leadership Alliance (HLA) competency framework that was developed by a consortium of six professional associations within the healthcare field (Stefl, 2008).

The purpose of the tool is to support healthcare executives and managers in their professional development by providing them with a self-assessment tool to identify their strengths and opportunities for growth. The tool can be used to assess healthcare manager competencies across the five domains of leadership, communication and relationship management, professionalism, business skills and knowledge and knowledge of the healthcare environment (ACHE, 2021). The tool utilizes a five-point Likert scale to assess competencies within each domain and equates the score to a competency level. As explained by the authors in the assessment tool, the competency levels are categorized according to the Dreyfus model, with a score of 1 representing the novice learner, a score of 3 indicating competency and a score of 5 equates to expert. See table 1 for the definitions of each competency level.

Table 1.1

Competency Level Descriptions

Competency Level (Score)	Description
Novice (1)	“You have the level of experience gained in a classroom setting or on-the-job training. You are expected to need help when performing this skill.”
Competent (3)	“You are able to successfully complete the competency as requested. Help from experts may be required from time to time, but you can usually perform the skill independently”.
Expert (5)	“You are known as the expert in this area. You can provide guidance, troubleshoot and answer questions related to this competency”.

With this information, individuals are then able to form a professional development plan that centers on strengthening their competencies, providing a baseline for comparison. The American College of Healthcare Executives (ACHE) advises that development plans should align individual goals to that of the organization to ensure healthcare executives have the competencies needed to meet business objectives (ACHE, 2021). Overall, the ACHE advises that healthcare executives or managers should be competent in all five domain areas.

Chapter Summary

This chapter provided a general overview of the problem that provided context for the importance of competency development for healthcare managers. The researcher's experiences were summarized and motivations for conducting the study were explained. A conceptual framework for the study was introduced that includes Higgins and Kram's (2001) typology of developmental networks, Kram's (1985) types of developmental assistance, and the 2021 ACHE Competency Assessment Tool that is based on the Healthcare Leadership Alliance competency framework (ACHE, 2021). These were used to examine the relationship between a healthcare manager's developmental network characteristics and the development of job competencies. The rationale for this study was to examine how developmental networks foster competency development for healthcare managers.

In the following chapter, a comprehensive literature review explores the importance of the role of the healthcare manager in today's healthcare organization, the development and use of competency models for the healthcare management profession and approaches to developing competency for healthcare managers. Additionally, developmental mentoring is explored examining the types of developmental assistance provided to the protege, the phases of the mentoring relationship, mentoring outcomes and characteristics of the mentoring dyad. Finally,

the literature on developmental networks is explored that includes the formation of networks, the characteristics of the network and the outcomes of mentoring networks. The research limitations and opportunities for future research are also explored.

CHAPTER TWO

Overview of Literature Review

A literature review was conducted to study the problem of healthcare manager competency development in the context of the current healthcare environment. This study sought to find a relationship between developmental network characteristics and self-reported job competency development for healthcare managers. Therefore, it was necessary to review and synthesize the literature across a variety of topics to inform the research question for this study.

The literature review consists of five focus areas: the healthcare environment, healthcare management competencies, competency frameworks for healthcare managers, mentoring in the workplace and developmental networks. First, a review of the literature on the healthcare environment and the challenges faced by healthcare managers provides background for the problem this study aims to examine. The second focus area included an examination of healthcare manager competencies and their relationship to organizational success. This provides an explanation for the importance of the study, specifically that healthcare manager competency is vital to healthcare organizational success in a challenging environment. The third focus area is a thorough review of three competency frameworks that have been developed for healthcare managers by experts in the field. This included a review of best practices for competency development and an exploration of whether they were applied to the three competency frameworks that were identified in the literature.

The fourth and fifth topic areas sought to explore other components of the primary and secondary research questions, the developmental networks of healthcare managers.

Developmental networks involve the provision of mentoring or developmental support to a protege, or healthcare manager, for the purposes of this study. Therefore, mentoring in the workplace was explored to better understand the types of mentoring support that can be provided, the phases of the mentoring relationship and the outcomes that have been identified through empirical study of all types of mentoring relationships. Finally, developmental networks were explored that included examination of network characteristics and structures, formation of developmental networks by individuals and organizations and the outcomes associated with them. This also included an examination of the limitations of current research on the subject and recommendations for future research.

Healthcare Environment

The healthcare environment in the United States is known to be complex and challenging for several reasons, including the increased pace of change, the high degree of complexity of healthcare delivery and regulations, accelerated technological change, healthcare reform, resource constraints, increased competition and pressures from external and internal interest groups (Agwunobi & Osborne, 2016; Begun et al., 2011; Huppertz et al., 2014; Payne & Leiter, 2013; Stefl, 2008). Additionally, the pace of change is predicted to increase as healthcare organizations advance their digital transformation in order to leverage technology and data to develop novel patient care delivery models that utilize telemedicine solutions and AI to transform healthcare delivery (Panch, Mattie, & Celi, 2019; van Velthoven, Cordon & Challagalla, 2019; Wehde, 2019). In order to remain competitive and ensure sustainability amidst these pressures, it is important that healthcare organizations develop and sustain a highly competent workforce that is able to meet these challenges, specifically in the area of healthcare management (Glasberg, 2007; Stefl 2008).

Importance of Healthcare Managers

The healthcare middle manager is situated in the center of the healthcare organization, and serves a variety of functions within it, contributing to the organization's success and sustainability through their effectiveness (Hernandez et al., 2018). The healthcare middle manager is positioned within the organizational hierarchy between senior leadership and other staff, such as clinicians and allied health staff who have direct interaction with patients (Awowale, 2017). They perform a range of management functions including responsibility and decision making in the areas of budget management, strategic planning, resource allocation, staffing, employee engagement and acquisition of technology (Awowale, 2017, p.61; Vizzuso, 2015). In addition to basic management functions, the literature discusses the critical role they play in the effectiveness of implementation of innovations (Birken et al., 2012) and evidence based practices (Birken et al., 2018; Embertson, 2006), knowledge transfer (Pappas, Flaherty, & Wooldridge, 2004), information sharing (MacDonald, J., Bath, P. & Booth, A., 2011), quality and efficiency improvements (McAlearney, 2008), and organizational learning (Beck & Plowman, 2009). Begun and Thygeson (2016) explore the complexity of healthcare management and describe healthcare delivery organizations as "complex adaptive systems" that require healthcare managers to provide leadership in facilitating change and innovation (p.7). This makes the healthcare middle manager a pivotal role within the healthcare organization and necessitates the development of competency for individuals holding those positions (Kakeman et al., 2020; Landry, Stowe, & Haefner, 2012).

Healthcare Manager Competencies and Healthcare Manager Competency Models

There is mounting evidence that substantiates a relationship between healthcare leadership and management competency with organizational performance and healthcare

outcomes (Crowe et al., 2017; Guo, 2003; Hernandez, O'Connor, & Meese, 2018; Shipton et al., 2008; Vainieri, Ferre, Giacomelli & Nuti, 2019). Additionally, Mclearney (2008) noted the importance of competency development for leaders in healthcare as a “key to organizational success” (p.325). Several researchers note that the current research is limited and have called for additional research to provide further evidence of the relationship, to connect competency domains to specific organizational outcomes and to explicate the findings further (Herd, 2016; Hernandez, O'Connor & Meese, 2018; Vainieri, Ferre, Giacomelli & Nuti, 2019). This will be an important avenue of research to advance and develop because of the increasing pressure on healthcare organizations to compete in the healthcare marketplace and to demonstrate efficacy and quality of care through the achievement of clinical outcomes (Crowe et al., 2017).

Developing a body of empirical evidence will advance and substantiate the profession of healthcare management as a vital role to the success and sustainability of modern healthcare organizations. Hahn and Lapetra (2019) stressed the urgency of continuous competency development amongst healthcare managers in order to achieve advances in healthcare (p.4) and organizational outcomes.

Healthcare Manager Competencies

Given the recognition of the importance of the healthcare manager's contributions to healthcare organizational effectiveness, the study of healthcare manager competencies is an important field of study, with few scholarly publications on the topic (Kakemam, Liang, Janati, Arab-Zozani, Mohaghegh, & Gholizadeh, 2020). Competencies are described in the literature within the healthcare administration context as moving or changeable, not static, and linked to behavioral and technical characteristics that drive individual performance and draw degrees of distinction between levels of performance, from typical to exceptional (Calhoun et al., 2008;

Garman, & Johnson, 2006). Specifically, they are “the knowledge, skills, attitudes, values, and behaviors that people need to perform a particular activity or task” (Pillay & Morris 2016). Although the field of study continues to develop, there is general agreement on the core competencies and behaviors associated with them (Huppertz et al., 2014). Several competency models have been developed and implemented in graduate level healthcare administration programs, however questions persist as to whether the competencies appropriately represent the needs of a rapidly changing healthcare environment (Rissi, Wallance, & Gelmon, 2015). Given this, individual healthcare managers and organizations must take it upon themselves to address the gap in order to ensure individuals holding this key role in healthcare organizations possess the competencies needed to contribute to the success and effectiveness of the organization.

Within the United States, several competency models have been developed by researchers and professional groups that can be used to assess the competencies of healthcare middle managers across a variety of domains (Garman et al., 2020; Huppertz, Strosberg, Burns, & Chaudhri, 2014; Stefl, 2008, Weiszbrod, 2020). According to scholars, competency models are “. . . collections of knowledge, skills, abilities, and other characteristics (KSALs) that are needed for effective performance” (Campion et al., 2011). The predominant competency models are the Health Leadership Alliance (HLA) model (Stefl, 2008) the Health Leadership Competency Model (HLCM) (Calhoun et al., 2009) and the Health Administrators Leadership (HAL) model (Garman & Scribner, 2011). Appearing within a couple years of each other, these three models were developed in response to calls for competency development in health administration education programs and across healthcare professions. This was done in the context of the increasing complexity of the healthcare industry and the emphasis on incorporating evidence based practices into healthcare management practice (Calhoun et al.,

2008; Stefl, 2008). Other competency models developed later adopted similar approaches by grouping competencies under broader domains. (Garman & Scribner, 2011; Huppertz et al., 2014). Thus, practitioners and researchers generally agree on a similar approach to competency development models, making comparison of models possible and enabling additional research that examines the competencies broadly and could be utilized to inform how competencies are used within health administration education and in healthcare administration practice (Huppertz et al., 2014).

In developing competency models for the healthcare management context, researchers and professional groups built upon approaches to competency modeling that were used in the field of industry and organizational psychology (Calhoun et al., 2008; Garman & Johnson, 2006). When healthcare administration competency models were initially developed, competency models in healthcare were not widely adopted because those used were developed for other industries and therefore lacked credibility in the healthcare context (Garman, Tyler, & Darnall, 2004). Therefore, to increase adoption and use of competency models and assessment tools, competencies and definitions were developed for the healthcare context. Within each of the predominant three models, the single competencies are grouped under competency domains (Calhoun et al., 2009; Garman & Scribner, 2011; Stefl, 2008). In addition to defining competencies, Garman and Scribner (2011) provide working definitions for the following concepts around healthcare administration competency:

“Core competencies: competencies thought to be associated with the success of an organization

Competency model: a collection of competencies associated with successful performance

Competency modeling: a systematic process for identifying and articulating competencies at either the individual or organizational level (p.14)”

Health Leadership Alliance (HLA) Model

The Health Leadership Alliance Model was developed by a consortium of six professional associations in the healthcare field that sought to provide a common framework across various domains within the field of healthcare management (Stefl, 2008). Table 1.2 lists the professional associations that formed the consortium across a variety of domains, including clinical, administrative and others (Stefl, 2008, p. 362-363). Most of the professional associations had their own credentialing and certification processes to assess professional competence within their domains (Stefl, 2008). By uniting the association’s competency models under a common framework, the consortium aimed to increase collaboration across healthcare management domains. To do this, they aimed to develop a database of competencies that could be used to assess competency at the individual or organizational levels (Stefl, 2008).

Table 1.2

The Healthcare Leadership Alliance Consortium Organizational Member List

The Healthcare Leadership Alliance Consortium
American College of Healthcare Executives (ACHE)
American College of Physician Executives (ACPE)
American Organization of Nurse Executives (AONE)
Healthcare Financial Management Association (HFMA)
Healthcare Information and Management Systems Society (HIMSS)
Medical Group Management Association (MGMA) and its educational affiliate, the American College of Medical Practice Executives (ACMPE)

In coming together, the task force they formed reviewed the competencies and competency domains that were used within each of their credentialing processes and identified five common competency domains. This exercise demonstrated that the competencies for healthcare managers across the various domains shared a common knowledge base and expertise that could further collaboration and teamwork across the disciplines. Approximately 77% of the competencies, a majority, were common amongst the professional associations (Stefl, 2008). The task force then leveraged the Dreyfus model, a framework that identifies five stages of skill development from novice to expert, to provide levels of competency that account for progression and development of competencies across career stages (Stefl, 2008).

While establishing common competency domains for all, the task force also recognized that some disciplines may require additional competencies or broader ranges of competencies than those within the common competency framework (Stefl, 2008). To solve this, they developed a Competency Directory in partnership with a psychometric firm that included the competency domains and competencies that were common to all, along with those that were specialized (Stefl, 2008). They developed a searchable excel tool that identified and labeled the competencies that were common to all and those that applied to specific domains. They further elaborated on this by identifying each competency as a knowledge area or skill, leveraging expertise from each of the professional associations to review and finalize them.

Following completion of the HLA model and the development of the Competency Directory, additional work has occurred that leverages the model in some way. Two of the associations developed assessment tools that incorporated the Dreyfus model approach used to distinguish early careerists (novice) from those with more experience. Additionally, portions of

the HLA model have been adopted by graduate health administration programs, in response to calls to integrate competency models to their curriculum (Stefl, 2008).

The HLA model is not without its limitations and should be considered an iterative and evolving framework that should be updated and validated as the healthcare environment changes and associated professional demands change with it (Stefl, 2008). Additionally, the competencies that are unique to individual specialties may need further refinement, be more equally distributed amongst the associations or additional sub-specialties added, for example, in the areas of insurance and quality management (Stefl, 2008). Finally, there is potential for bias on the part of the experts who participated in the competency review (Stefl, 2008).

Health Leadership Competency Model (HLCM)

The Health Leadership Competency Model is currently used by a number of organizations and graduate programs, was originally developed in 2004 and has since been revised twice, in 2008 and more recently, in 2020 (Calhoun et al., 2004, Calhoun et al., 2008, Garman et al., 2020) by the National Center for Healthcare Leadership (NCHL). Researchers took a similar approach to that used to develop the prior version when creating the newest model, referred to as version 3.0 by the NCHL, employing mixed methods across several phases (Calhoun et al., 2008, Garman et al., 2020). In the first phase, researchers conducted a “future scan” of the healthcare environment and engaged chief executives and chief human resource officers within the healthcare field to review the themes that emerged to ensure their relevancy (Garman et al., 2020). These themes were then used to inform updates to the model, including those based on changes in the current environment, as well as those identified through the “future scan” (Garman et al., 2020).

Then, in phase two, they again adopted similar methods to those used for the prior version and conducted interviews with early and mid career healthcare leaders using a behavioral event interviewing methodology (Garman et al., 2020). These interviews were coded into behavioral descriptions and mapped to the prior model (Garman et al., 2020). Where there was a mis-match, updates were made that resulted in the removal of a proficiency level for two of the competencies and the expansion of one competency into two distinct competencies (Garman et al., 2020, p.E48). Next, language was updated for some of the behavioral statements to align with those from the interviews (Garman et al., 2020). Finally, the competencies were reorganized into seven domains, an increase of four domains from the previous version (Calhoun et al., 2008; Garman et al., 2020). The four new domains were based on a review of relevant leadership topics within the research and were reviewed by practitioners in the health sector (Garman et al., 2020).

The third and fourth phases examined the generalizability of the competencies from the perspectives of those working in the health sector and how they mapped to other competency models. In the third phase, the researchers aimed to assess the generalizability of the competencies by conducting two focus groups composed of NCHL committee members. Additionally, they surveyed a group of leaders within the health sector, including academics and practitioners, with all career stages represented (Garman et al., 2020). In the fourth phase, they crosswalked the newly updated competency model to other models used, including those within the United States and internationally using natural language processing software (Garman et al., 2020). Using this multi-methods approach, the researchers demonstrated that it is possible to develop a common framework that other competency models can be mapped to (Garman et al., 2020). The mapping exercise revealed that the competencies from the other models mapped into

six of the new frameworks, except for the values domain that could not be mapped for three of the models included. After discussing with clinical leaders it is thought that values may differ between clinician leadership models and formal leadership roles (Garman et al., 2020).

Health Administrators Leadership (HAL) Model

The Health Administrators Leadership (HAL) model was developed and validated in 2004 for use in health administration education programs and by practitioners in the field (Garman et al., 2004). Researchers developed the model based on the recognition that the practice of healthcare administration is complex, that practitioners require feedback on their performance to develop competencies and that the competency tools available at the time were not developed for the healthcare context and lacked credibility as a result (Garman et al., 2004). The researchers took a multi-phased and multi-methods approach to developing a competency framework that included gathering information from a variety of experts in the health administration field and employing validity tests throughout the phases (Garman et al., 2004). This resulted in the production of a competency model that included seven competency domains, or “clusters” and twenty-five competencies within each cluster (Garman et al., 2004) that could be used by raters to assess an individual healthcare administrator’s competencies. Additionally, they further assessed the competency model by implementing it within a healthcare administration education program for master’s level students and in an academic medical center with a group of nursing administrators (Garman et al., 2004).

To ensure reliability and validity of the resulting competency model, the researchers took a multi-phase and multi-methods approach to development (Garman et al., 2004). They began the process with interviewing executive search consultants who were familiar with the competencies sought within the healthcare administration domain (Garman et al., 2004).

Following the interviews, they transcribed the responses into competency descriptions, then coded them using content analysis and grouped them based on an algorithm they developed to ensure that the items fit their operational definition of leadership (Garman et al., 2004, p.310). This resulted in production of a first draft of the competency model that included seven competency domains and twenty-five competency areas (Garman et al., 2004).

Next, they conducted a second survey of subject matter experts across a variety of areas within the healthcare administration domain, including consultants, human resource professionals and healthcare administrators (Garman et al., 2004). They asked those surveyed to rate the importance of the competency (using a 5 point likert scale) at three levels of health administration career, entry, middle and senior and to indicate whether the competency was a strength or weakness for each given level (Garman et al., 2004). This information enabled the researchers to confirm the relevance of each competency and to determine the level of competency expected at each career level, according to the subject matter experts. In order to validate agreement amongst the experts, they calculated the content validity ratios (CVR) on the ratings of the importance of each competency. Except for two, this analysis confirmed the relevance of the competencies (Garman et al., 2004). They then developed a set of criteria to apply to the likert scale responses that came from respondents scoring the importance of the competency and determined which competencies were relevant to each of the three career levels.

Moving on to the next phase, they conducted additional interviews with healthcare administrators using critical incident methods (Garman et al., 2004). They transcribed their responses and conducted content analyses to reduce the total items by combining like items (Garman et al., 2004). Following this, two independent raters then reviewed the resulting items

to ensure they were relevant and universally descriptive (Garman et al., 2004, p.311), resulting in 107 behavioral descriptions for the twenty-five competencies, within the seven domains.

To further establish the reliability and validity of the model and assessment tool, the researchers implemented the assessment with two groups, students of a master's level healthcare administration program and nurse administrators within an academic medical center (Garman et al., 2004). For both study groups, the researchers asked participants to identify individuals who could rate them using the assessment tool, to provide 360 degree feedback for each (Garman et al., 2004). Steps were taken to assess the reliability of the responses including calculation of Cronbach's alpha for the clusters and competencies as well as convergent validity by comparing the results to other measurements of leadership, including against another competency model called the Health Administrators Leadership Assessment (HALA) (Garman et al., 2004). The results showed that the competency model that was developed correlated significantly to other measurements of healthcare leadership competency (Garman et al., 2004).

Although the researchers concluded that the competency model and assessment tool that they developed were reliable and have validity, they noted some limitations for consideration (Garman et al., 2004). First, the sample of subject matter experts was not ethnically diverse, although they had tried to recruit a sample that was more so (Garman et al., 2004). The implication of this is that cultural competency may be under-represented in the overall competency model. Secondly, physicians were not represented amongst the subject matter experts interviewed and thus, any differences between physician leader and non-physician leader competencies may not be accounted for (Garman et al., 2004). However, the researchers note that they have no reason to expect there would be (Garman et al., 2004). Additionally, senior administrators were underrepresented compared to mid and entry level career healthcare

practitioners who participated in the rating of competencies within each of the career levels (Garman et al., 2004). Finally, the researchers acknowledge that the length of the assessment tool is over one-hundred items and this could make implementation difficult in asking raters to complete such a lengthy assessment (Garman et al., 2004).

Strengths and Limitations of Healthcare Management Competency Models

A review of best practices for competency modeling within the discipline of organizational psychology reveals the strengths and limitations of the healthcare management competency models previously discussed (Campion. et al., 2011). Campion et al. (2011) synthesized the research on competency modeling and offered best practices for development and implementation of competencies that are applicable to the healthcare management professional domain (Figure 2, Campion et al., 2011, p.230). As shown in figure 2, the best practices are grouped into three domains: Analyzing Competency Information, Organizing and Presenting Competency Information and Using Competency Information. When applied to the healthcare management competency models discussed previously, the best practices can be categorized as either a strength or limitation of the model.

Strengths

Overall, there are many strengths in how the three predominant competency models (HLA, HLCM and HAL) were developed, with each model having generally followed the best practices outlined within two applicable categories identified by Campion et al. (2011): “analyzing competency information” and “future-oriented requirements”

Within the first category, “analyzing competency information”, the three models incorporated and met all but one of the best practice recommendations offered by Campion et al. (2011). First, Campion et al. (2011) outline the importance of linking organizational

objectives to competencies, in the context of the organization. In contrast to competency modeling for use in a single organization, the three models were developed for broader use, across settings such as healthcare organizations and healthcare administration education programs. Therefore, the context considered for the purposes of these models was that of the healthcare environment and the organizational objectives were those of healthcare organizations more broadly (Garman et al., 2020; Garman et al., 2004; Stefl, 2008). Each group ensured that the context of the healthcare industry and the current and future needs of the healthcare environment were considered when starting their modeling approach by asking subject matter experts within the field (Garman et al., 2020; Garman et al., 2004; Stefl, 2008) to consider the competencies in the context of the healthcare environment. This ensured that the goals and objectives of the healthcare environment tied to the competencies, based on assessment by the experts at the top of their field. Additionally, the experts that were interviewed were at the top of their field, which is another recommended best practice offered by Campion et al. (2011) due to the likelihood that they may be better positioned to understand competency needs and have more insight into the future direction of the industry (p.233). Building on that, it is recommended that the modelers employ data collection methods aimed at specifically collecting “future-oriented requirements” (Campion et al., 2011). Only one of the three models formally collected future oriented requirements by conducting a “future scan” (Garman, A.N., Standish, M., & Wainio, J.A., 2020). Finally, the authors recommend that competency modelers use a variety of data collection methods, including “observations, SME interviews, and structured brainstorming methods in focus groups to identify potential competency information” (Campion et al., 2011, p.234). A major strength of these three models is that they all incorporated a multi-methods approach to competency modeling that included various combinations of these

methods (Garman et al., 2020; Garman et al., 2004; Stefl, 2008). This includes use of novel methods such as critical incident behavioral interviews which were used by two of the modeler teams to develop the HLCM and HAL models (Garman et al., 2020; Garman et al., 2004)

Within the second category, “organizing and presenting competency information”, the modelers met the majority of the best practices that apply. Specifically, they defined each competency as knowledge, a skill, an ability or some other characteristic as well as defining an associated behavior for each to enable assessment of the skill (Campion et al., 2011; Garman et al., 2020; Huppertz et al., 2014; Stefl, 2008, Weiszbrod, 2020). Additionally, each of the three models defined levels of proficiency for each competency to enable practitioners to assess where individuals are performing in order to identify where they have opportunity to grow and develop (Campion et al., 2011, Garman et al., 2020; Huppertz et al., 2014; Stefl, 2008, Weiszbrod, 2020). Finally, the models had an appropriate level of granularity based on the testing they conducted with groups after developing the competency model (Garman et al., 2020; Huppertz et al., 2014; Stefl, 2008, Weiszbrod, 2020). Notably, the model developers for the HAL model, noted that the length may be prohibitive, given that the questionnaire had over one-hundred items, however they did not note that they experienced the issue with their testing of the model (Garman et al., 2004).

In summary, each of these three models was an exemplar for their adherence to competency development best practices that applied to their purpose of use. With each model, the developers were working collaboratively outside an organization to develop the competency models. Therefore, the best practices that applied to using competency models within an individual organization did not apply here. Each model incorporated all of the best practices

outlined by Campion et al. (2011), with the exception of the inclusion of “future-oriented competencies” (p.235) which was only done with the HLCM model (Garman et al., 2020).

Limitations

Although the methods used to develop each of the models was grounded in best practices, the three models share some broad limitations that have implications for generalizability and use in practice. They demonstrated validity and were aligned with the best practices for methods selection that was identified by Campion et al, 2011, but each of the models has been developed and tested with relatively small sample sizes. However, the models would be strengthened if tested with larger sample sizes across a variety of contexts and disciplines within the healthcare management, such as healthcare finance or healthcare quality. Researchers have pointed out that certain disciplines within healthcare management may have unique competency requirements compared to others, necessitating additional competencies specific to that domain. Or, additional study may find that some competencies do not apply to healthcare management across the board and that some competencies may not apply in the context of specialty disciplines. These differences could be identified or proven not to exist if additional studies of the models were done across a variety of contexts and with different types of stakeholders, across career levels.

Another limitation of the three models is that the HLA and HAL models are out of date, having been developed many years ago, in 2008 and 2004, respectively. In contrast, the HLCM has been updated twice since it was originally developed, most recently in 2020. Finally, these models were developed for broad use, by healthcare administration education programs, by individual healthcare management professionals and by healthcare organizations, making them general, not specific to the organizational context. According to the best practices identified by

Campion et al.(2011) the competency model benefits from incorporating an organization's common language, such as acronyms, job titles, business units, etc. (p.242). This serves to enhance communication and ownership of the model within the organization because the language is familiar and thus, makes it easier to incorporate into practice because of shared understanding of meanings (Campion et al., 2011).

Application of Healthcare Manager Competency Models

Although competency models and accompanying assessment instruments are useful for identifying an individual's level of competency in healthcare management, they must be used in conjunction with other approaches that support adult learning in order to help managers develop (Garman & Scribner, 2011). Therefore, the utilization of these competency models to assess competency can be applied in three main ways: within the curricula of healthcare administration education programs (Hahn & Lapetra, 2019), for use by individual healthcare managers and for healthcare organization use, such as within leadership development programs (Calhoun et al., 2008; Garman & Scribner, 2011; Stefl, 2008).

Within healthcare administration programs, competency models that have been developed for use in the practice of healthcare management are typically adapted for use in the educational setting to develop curriculum, assess career readiness and to predict career success for students of these programs (Clement et al., 2010). Therefore, the competency model does not aid in student's development. Rather, it is used to assess whether development took place through other methods of instruction and adult learning that takes place within the program's curriculum.

Similar to the educational context, competency models can be used by individuals to assess competencies that were developed through other ways of adult learning, such as job

training, continuing education, hands on practice, mentoring or professional associations and networks (Garman & Scribner, 2011). Competency models can be used by individuals to assess their levels of competency for professional development use, to identify gaps in required skills for their current roles or to identify opportunities for growth to advance to the next level of competency (Calhoun et al, 2008; Garman & Scribner, 2011; Stefl, 2008). In addition to using the competency model for self-assessment, the models can also be used by others to provide the individual with a 360-degree feedback assessment. According to Garman et al. (2004), 360 degree feedback consists of “multisource feedback [that] involves the distribution and collection of survey data regarding a specific leader to various key groups in that leader’s domain of work, including peers, subordinates, and sometimes superiors and clients” (p.308). To do this, someone who is knowledgeable about the individual’s competencies and job performance would complete the assessment and share it with the individual (Garman et al., 2004). At an individual level, healthcare managers can use the assessment results to make a career development plan, to identify strategies for improving competencies that were identified in the assessment process. They may choose to collaborate with a manager, colleague or mentor to identify the strategies and tactics to develop each competency and to track progress on their plan, or work independently.

This approach could be expanded at the organizational level within leadership development programs, as part of broader initiatives to provide professional development for healthcare managers. More specifically, organizations could use competency models, or portions of them as part of a focused effort to develop competencies that are linked to key organizational objectives or outcomes that align with strategic goals (Garman et al., 2011). The organizational initiatives could range from highly structured to relatively informal. For

example, an organization could sponsor a highly structured leadership development program that utilizes the competency assessments to provide developmental programming to meet specific organizational objectives. As an example, a formal program could include education, training and formal mentorship opportunities that require resources and expertise to deliver to participants. Or, on the opposite end of the spectrum, they could conserve resources and develop a self-service toolkit of information about how to develop your own professional development plan, with a list of developmental tools and a competency assessment tool that is open to everyone. The objective of the program or resource that they developed should drive what development tool is most appropriate for meeting the goals. Therefore, organizations can use the competency models to assess competencies in a variety of ways, depending on their objective and in conjunction with other developmental tools or approaches.

Mentoring for Healthcare Managers

Mentoring in healthcare has been empirically studied as a developmental tool for healthcare managers (Olson, Prybilm & Hilber, 2004; Rubens & Halperin, 1996). Mentoring can be used to develop competencies in areas where healthcare managers need to be effective in their roles in order to improve organizational performance (Edwards et al., 2015; Finney et al., 2012; Hartman & Crow, 2002; Koberg, Boss, & Goodman, 1998). Healthcare executives and organizations also recognize mentoring as a developmental tool that can be used by organizations to develop future leaders in healthcare (Flaig et al., 2020; Hartman & Crow, 2002, Olson, Prybil, & Hilber, 2004). Additionally, mentoring is sometimes seen as a means of obtaining competitive advantage (Olson et al., 2004). Researchers have called for the use of experiential learning opportunities for healthcare managers that are based on their needs and supported by a mentor (Warden & Griffith, 2001). Researchers have begun experimenting with

experiential learning opportunities, including those that combine mentoring with project work to “expose them to a range of competencies” within an organization (Finney, MacDougall, & O’Neill, 2012, p.170). This is supported by practitioners in the field, with healthcare senior administrators having long ago recognized the value of mentoring junior administrators to support knowledge sharing and experience that is specific to the organizational context (Finley, Ivanitskaya, & Kennedy, 2007).

According to a literature review conducted by Flaig et al. (2020), only half of hospitals have a leadership development program, such as “classroom based training, skills-based training, action learning, mentoring, coaching or online programs” (p.70). Most of these programs have been developed by the organization, to meet the organization’s specific goals and in alignment with their culture. Flaig et al.’s (2020) literature review showed that participants in the leadership programs were able to gain knowledge of roles and responsibilities as well as increase their confidence and communication skills (p.79). This suggests that leadership development programs can have a positive influence on healthcare manager competency development, although there are a lack of empirical studies that provide data on the effects of the programs or that approached measuring outcomes with rigor (Flaig et al., 2020; Whaley & Gillis, 2018). This warrants future research and study to determine what effect leadership development programs have on competency development and associated organizational outcomes, such as those that offer or support mentoring or developmental assistance for healthcare managers.

Mentoring in the Workplace

Mentoring in the workplace has traditionally been defined as a developmental relationship between a more skilled or experienced person within the organization and someone

who is less skilled and experienced for the purposes of career advancement (Alfred & Garvey, 2000; Kram, 1983; Smith, Howard & Harrington, 2005). However, many researchers have noted the limitations of defining mentoring this way (Haggard et al., 2011). Thus, they have expanded the mentoring construct to be more inclusive of others who are simply able to contribute towards the developmental needs of a protege, such as peer mentors (Kram, 1985), supervisors (Haggard et al, 2011; Yip & Kram, 2015) or those outside the organization (Haggard et al., 2011). For example, developmental mentoring expands upon the traditional concept of mentoring to include mentors from many different backgrounds who provide developmental support that is centered on the protege's developmental needs and may or may not include career advancement (Washington & Cox, 2016). A developmental view of mentoring is one where the mentor is invested in getting to know the protege so that they can provide developmental support that is specific to the protege's strengths and weaknesses and to their developmental and professional goals (Montgomery, 2017, p.2). Viewed in this lens, high quality and efficacious mentoring means that the mentor is responsive to the protege's needs and utilizes their understanding of the protege to guide and support them by offering developmentally appropriate challenges (Bearman et al., 2010).

Mentoring Functions

Developmental mentoring relationships can be studied in terms of what functions are present in the relationship at any given time (Kram, 1988). These types of relationships are distinguished from other relationships in the workplace, based on the presence of these functions. The seminal works on the study of mentoring, such as Kram's foundational book *Mentoring at Work* (1988), identified two types of mentoring functions, psychosocial and career related. Kram defines these as follows: "Career functions are those aspects of a relationship that

enhance advancement in an organization. These functions include sponsorship, exposure-and-visibility, coaching, protection, and challenging work assignments” (1988, p.25). In contrast, “psychosocial functions are those aspects of a relationship that enhance an individual’s sense of competence, identity, and effectiveness in a professional role. These functions include role modeling, acceptance-and-confirmation, counseling, and friendship” (1988, p.38). Some scholars categorize role modeling as a third type of mentoring function instead of an individual function with the category of career functions (Dickson et al., 2014; Haggard et al., 2011; Murphy & Kram, 2010). Regardless of whether role modeling is classified as a distinct type of mentoring versus an individual function, there is agreement about the importance of role modeling and its inclusion as a component of mentoring.

Within each of the three categories of functions (career related assistance, psychosocial support and role modeling), each function can occur throughout the phases of the mentoring relationship at varying levels (Kram, 1985). Through interviewing proteges, Kram (1983) found that career functions were present in all of the participant’s mentoring relationships, but that psychosocial functions were not present for three of them. This suggests that not all mentoring relationships consist of psychosocial and career related functions (Kram, 1983). Additionally, psychosocial or career functions may have more significance to the development of the protege, depending on the circumstances (Smith, Howard, & Harrington, 2005). The presence of the career and psychosocial mentoring functions, as defined by Kram in her original work, were empirically validated in subsequent studies (Yip & Kram, 2015) by Noe (1988), Ragins & McFarlin (1990) and Scandura & Ragins (1993).

Several factors influence the individual mentoring functions that are provided, such as the mentor’s position within the organization, the role relationship between the mentoring dyad,

the organizational practices in place (Kram, 1988) and attitudes and characteristics of the relationship. Some of the mentoring functions, such as sponsorship, are dependent upon the seniority of the mentor's position in the organization, their sphere of influence and the position of the protege, relative to the mentor (Haggard et al., 2011). For example, the mentor may not have the necessary access, influence or relationships needed to enable them to promote the protege to other individuals that could yield opportunities for the protege. Additionally, they may have access and influence, but promoting the protege may not be supported by the organization's norms and practices (Kram, 1988, p.43). Therefore, other factors influence the presence of mentoring functions, regardless of the desire or ability of the mentor to provide it, although few have studied the influence of the organizational context (Smith, Howard, & Harrington, 2005). Finally, characteristics of the mentoring relationship have been shown to have a relationship with the mentoring functions that are provided. For example, protege satisfaction with the mentor was associated with psychosocial functions, such as counseling, friends, and acceptance and confirmation (Allen et al., 2004, p.132).

Mentoring Phases

Building on the previous section, developmental mentoring relationships evolve over time and can be distinguished by phase, with mentoring functions occurring at varying levels, depending on the phase (Chao, 1997). Thus, the mentoring relationship is marked by phase, rather than by a set period of time, such as months or years (Kram, 1983). Allen and Eby (2010) suggest that some relationships may proceed through the phases faster than others, perhaps based on constraints put on the relationship, such as in the case of a formal workplace mentoring program that occurs over a predetermined period of time (p.405). Additionally, other characteristics of the relationship, such as "belongingness" (Allen & Eby, 2010), trust

(Bouquillon, E.A., Sosik, J.J. & Lee, D., 2005) and personal identification between the mentoring pair (Humberd & Rouse, 2016) influences the evolution of the relationship and changes throughout its phases.

In her seminal work, Kram (1983) identified and described developmental relationships as consisting of four stages: initiation, cultivation, separation and redefinition. This was based on interviews she conducted with managers working in a public utility company who were interviewed about the evolution and influence that developmental relationships had on their career (Kram, 1983). The study results showed that mentoring relationships generally proceeded through all four stages and this finding was later validated in a subsequent study by Chao (1997). The phases as defined by Kram (1983) continue to be used as a theoretical framework for studying mentoring relationships in the workplace, across a variety of professional contexts, including business, academic and teacher education settings (Chao, 1997; Hackmann & Malin 2020, Humberd & Rouse, 2016; Lynn & Nguyen, 2020). Kram's (1983) phases include: Initiation, Cultivation, Separation, and Redefinition.

Initiation Phase

The initiation phase begins when one member of the mentoring dyad recognizes the potential value that the other may have and after being introduced a mutual respect forms between them (Chao, 1997; Kram, 1983). Commonly, the pair becomes acquainted through the work context, from interacting on a work task, from a job interview or through a recommendation from another colleague (Kram, 1983, p.615). Either the mentor views the protege as having promise or growth potential whom they may be able to provide developmental assistance to, or the protege recognizes the mentor as someone who is positioned to provide mentorship based on their skills, experience or position within an organization (Chao,

1997; Kram 1983). Kram (1983) does not specifically address how initiation occurs with formal mentoring relationships. In the context of a formal mentoring program, offered by an organization, the organization would serve the function of identifying qualified mentors and promising proteges to participate by invitation or by defining eligibility for participation in the program. Once introduced, the mentoring pair becomes further acquainted with both parties continuing to interact or by formally agreeing to enter a developmental mentoring relationship through use of a mentoring agreement that establishes ground rules and sets expectations (Washington & Cox, 2016). With or without a formal agreement, the pair continues to get to know each other, with the protege beginning to seek guidance and advice, while the mentor begins to provide mentoring functions and developmental opportunities (Kram, 1983).

Cultivation Phase

The cultivation phase is marked by the testing of expectations as the mentoring dyad becomes more acquainted and mentoring functions occur in the areas of career and psychosocial mentoring (Kram, 1983), p.616). In her seminal study, Kram (1983) noted that the greatest number of mentoring functions occurs in this phase as compared to the others. A later study by Chao (1997) also found that proteges perceived receiving the most mentoring during the cultivation phase, in the form of career and psychosocial functions.

In this phase of the relationship, the mentoring functions that are provided vary between mentoring pairs depending on the circumstances and influences surrounding the relationship (Kram, 1985). These could be related to the developmental needs of the protege, the characteristics and closeness of the relationship and the frequency of the interactions between the pair. During this phase, as trust, reciprocity and mutuality grows, the relationship is strengthened (Kram, 1985). Both the protege and the mentor realize the benefits of the

relationship. This comes through career development and increased confidence for the protege and in the satisfaction and empowerment that comes from being able to positively influence another's development for the mentor (Kram, 1983).

Separation Phase

The separation phase of the relationship constitutes a maturing of the mentoring relationship, as the protege becomes more independent, with reduced need for the mentor's advice and assistance, due to their developmental growth during the cultivation phase and ability to be autonomous. During this phase, one member of the dyad may perceive the protege's readiness to separate differently from the other and this can cause tension for the other individual (Kram, 1983). For example, a protege may want to operate more independently, while the mentor may not think they are ready. Kram (1983) found that this perception on the part of the mentor may be related to their own perceptions of job growth, rather than the actual readiness of the protege to operate more independently. In contrast, the protege may experience difficulty during this phase if they do not feel ready to separate or may experience sadness in transitioning to a state independence from their mentor. Regardless, transition to the separation phase is an essential step in the development process for proteges to be able to demonstrate their ability, independent of the mentoring relationship (Kram, 1983).

Redefinition Phase

In the final phase of the mentoring relationship, is a maturing of the relationship between a less experienced and more experienced pair, to that of a friendship or to a relationship between equals, representing a power shift (Kram, 1983; Washington & Cox, 2016). In this phase, some mentoring functions may continue, such as psychosocial functions and career functions, for example, coaching. In this phase, the relationship has changed, in that the protege

may view the mentor differently, having gained more experience themselves. And, for the mentor, they may no longer be senior to the protege in terms of skills and experience. For the pair, this phase can be a negative one with a less than optimal outcome. For example, either the mentor or the protege could be threatened by the other, choosing to withdraw from the relationship, rather than transitioning to a peer relationship. Overall, the redefinition phase is defined by the change(s) that has occurred in the relationship between the dyad.

Types of Mentoring Relationships

Within the literature, mentoring has been categorized based on the role relationship between the mentoring pair and how the relationship was initiated. Traditionally, a mentoring relationship is defined as a dyadic development relationship, between a more skilled or experienced person within the organization and someone who is less skilled and experienced (Alfred and Garvey, 2000; Kram, 1983; Smith, Howard and Harrington, 2005). However, many researchers have noted the limitations of defining mentoring this way and have expanded it to be more inclusive of others who are simply able to contribute towards the developmental needs of a protege, such as peer mentors (Haggard et al., 2011; Kram, 1985), supervisors (Haggard et al., 2011; Yip & Kram, 2015) or those outside the organization (Haggard et al., 2011). Additionally, mentoring relationships are categorized as being formal or informal, based on how they were initiated. Formal relationships are initiated through an organization sponsored activity, such as a leadership development program and mentor-protege matching process (Smith, Howard & Harrington, 2005). In contrast, informal mentoring relationships are initiated organically, with no organizational intervention, where either the mentor or the protege recognize the other's potential and begin to get to know each other (Smith, Howard & Harrington, 2005).

These categorizations are important to the study of mentoring in the workplace because the type of mentoring (formal or informal) and the role relationship between the mentoring dyad (peer to peer, supervisor vs. non-supervisor, traditional senior to junior) have been found to influence the amount and type of mentoring functions received (Chao, Walz & Gardner, 1992; Haggard et al., 2011). In their study of formal and informal mentoring relationships, Chau et al. (2011) found that those in informal relationships received more career related support than those in formal relationships. However, the amount of psychosocial support received was the same, regardless of the mentoring relationship type (Chau et al., 1992). Later, Allen & Eby (2003) examined the differences between the amount of mentoring received by relationship type. They did not find a difference in the amount of mentoring received when comparing formal and informal relationships. According to Allen and Eby (2003), this difference is likely explained by the fact that the study by Chau et al. (1992) asked protege's to assess the amount of mentoring received whereas Allen and Eby's study asked the mentors to report on mentoring provided. Subsequently, a study by Allen, Day, and Lentz (2005) showed that individuals in informal relationships reported receiving higher levels of career related support, consistent with Chau et al. findings (1992).

In addition to examining the receipt of mentoring, Chao et al. (1992) found differences in job outcomes between individuals in formal versus informal relationships, such as organizational socialization, job salary and job satisfaction. However, it should be noted that those in informal relationships reported only slightly higher levels of these outcomes (Chau et al., 1992). Additionally, Allen, Day, & Lentz (2005) found that proteges in informal relationships reported having higher quality relationships based on the level of interpersonal comfort between the dyad. Overall, these findings underscore the importance of considering

mentoring relationship type when empirically studying the receipt of mentoring and mentoring outcomes.

Mentoring Outcomes

Mentoring in the workplace has been studied for the past several decades and the research has shown mentoring functions to be associated with several positive outcomes, including behavioral outcomes, career outcomes and job related attitudes (Craig et al., 2012; Dickson et al., 2014; Eby et al., 2008). However, it is worth noting that the effect size of these outcomes has been shown to be small, based on meta-analysis conducted by Allen et al. (2004), Dickinson et al. (2014) and Eby et al. (2008). Craig et al. (2012) found that effective organizational commitment moderated the relationship between psychosocial mentoring and a protege's turnover intention, but did not find the same relationship for career functions. Additionally, they did not find a relationship between the career or psychosocial mentoring functions and a protege's job involvement (Craig et al., 2012). Similarly, Allen et al. (2004) also found differences in the relationship between the two types of mentoring functions and outcomes. Specifically, they found a relationship between job compensation and promotion that were found to be related to career mentoring functions, but not psychosocial. In contrast, both functions were positively related to job and career satisfaction. Dickson et al. (2014) conducted a meta-analytic review of the literature on mentoring functions and outcomes, recognizing role-modeling as a third type of mentoring function. They reached similar conclusions to that of Allen et al. (2004) and Eby et al. (2008), noting the small effect size in the relationship between mentoring functions and outcomes, with little variation between the three types of mentoring functions and size effect. They joined Allen et al. (2004) and Eby et al. (2008) in calling for

additional research to further study the relationship between mentoring functions provided and outcomes, specifically emphasizing the need for longitudinal research (Craig et al., 2014).

Developmental Networks

Developmental networks consist of the provision of developmental support to the protege from a variety of developers, including the provision of psychosocial and career related assistance (Higgins & Kram, 2001; Dobrow Riza & Higgins, 2019). They span organizational boundaries and include a broader range of relationships in addition to traditional mentoring (Dobrow et al., 2012). Higgins and Kram (2001) and Dobrow et al., (2012) consider the developmental network to be a “subset of a protege’s larger social network” (Dobrow et al., 2012, p.214) based on their interest in the protege’s career development. Additionally, a developmental network goes beyond the walls of the workplace and includes relationships with developers from outside the organization, including peers, subordinates or supervisors relative to the protege’s experience and role (Kram & Higgins, 2007). Additionally, developers could include those that are family, friends or from other social groups (Dobrow et al., 2012, p.214).

Early on, Kram introduced the idea of individuals having multiple developmental relationships at one time and throughout the course of their careers, referring to these as “relationship constellations” (1988). Building on this seminal work, scholars have further explored the multiple relationship construct (Higgins & Thomas, 2001; Higgins and Kram, 2001, Dobrow & Higgins, 2005; Murphy & Kram, 2010) using the terms “multiple mentors”, “mentoring networks”, “developmental networks” and “interpersonal networks” (Dobrow, Chandler, Murphy & Kram, 2012). In conducting the first systematic review of the developmental network literature, Dobrow et. al (2012) sought to provide conceptual clarity around these constructs and their definitions. This built on the work of Haggard et al., 2011,

who also reviewed the variation in definitions of mentoring throughout the literature and its implications for subsequent research.

According to Dobrow et al., 2012, the constructs of “multiple mentors” and “mentoring networks” are conceptually close. Both are based on the traditional definition of mentoring that is defined as a developmental relationship between a more skilled or experienced person and someone who is less skilled and experienced for the purposes of career advancement (Alfred & Garvey, 2000; Kram, 1983; Smith, Howard & Harrington, 2005). However, others recognized the limitations of defining traditional mentoring this way and expanded the mentoring construct to be more inclusive of others who are simply able to contribute towards the developmental needs of a protege, such as peer mentors (Kram, 1985), supervisors (Haggard et al, 2011; Yip & Kram, 2015) and those inside and outside the organization (Haggard et al., 2011). Additionally, based on Kram’s seminal work, traditional mentoring consists of the provisioning of varying amounts of psychosocial and career related support (Kram, 1985). Although there is some variation in the traditional definition of mentoring, there is no agreed upon distinction in the literature between having “multiple mentors” and “mentoring networks” (Haggard et al., 2011; Dobrow et al, 2012). Therefore, both terms are defined the same way and represent the state of having more than one mentor (Dobrow et al., 2012).

In contrast, the constructs of multiple mentors and mentoring networks differ from that of developmental networks because they “do not consider the relationships between developers” (Dobrow et a., 2012, p.213). Thus, a key difference between constructs is that the study of developmental networks includes the examination of the relationship between developers in the network, referred to as density and range (Dobrow et al, 2012; Higgins & Kram, 2001). In comparison to mentoring networks, developmental networks are broader, spanning

organizational boundaries and including a broader range of relationships in addition to traditional mentoring (Dobrow et al., 2012). This includes relationships with developers from the workplace and at all levels, such as those who are peers, subordinates or supervisors, relative to the protege's role. Additionally, developers could include those that are family, friends or from other social groups (Dobrow et al., 2012, p.214).

Rationale for Development Networks

Kram and Higgins (2007) argue that building your own personal developmental network is a better approach than relying on one developmental relationship with a single mentor to meet your developmental needs. Agreeing with Kram & Higgins, Montgomery (2017) argues that it is unrealistic to expect that one mentoring relationship will fulfill all of the developmental needs for a protege, given the range of mentoring functions and associated outcomes that have been documented by researchers (Dickson et al, 2014; Haggard et al., 2011; Murphy & Kram, 2010; Kram, 1988). This was empirically supported in a study by DeCastro et al. (2013) that explored the use of mentoring networks by junior faculty researchers. The researchers themselves reported that they found benefit in developing relationships with more than one mentor, including peer mentors, that resulted in mutual learning between the protege and mentor. De Janasz, Sullivan, & Whiting (2003) advise that individuals should continually evolve their breadth of knowledge and skill sets by learning from a diverse "portfolio" of mentors who bring a range of expertise to assist the protege in their developmental needs (p.83). They also stress that this should continue at all developmental stages to ensure continuous learning.

Moreover, DeCastro et al. (2013) take it one step further and suggest that having a developmental network of mentors is a "safeguard against inadequate mentoring" (p.7). This is because having multiple mentors reduces the dependency of the protege on a single mentor or

developer for receipt of career development and support functions. In their study of junior faculty researcher's experiences with developing their own networks, the researchers found that individuals leveraged others in their network when one mentor "wasn't giving [them] enough" (DeCastro, Sambuco et al., 2013, p.9).

Additionally, Higgins and Kram (2001) argue that to remain competitive in today's workplace it is necessary to stay up to date on the latest knowledge, technologies and ways of working (Higgins & Kram, 2001). They further point out that having multiple developmental relationships, with senior leaders and peers, may benefit proteges by providing multiple sources of information (Higgins & Kram, deJanasz, Sullivan & Whiting, 2003). According to Higgins and Kram (2001) and deJanasz, Sullivan and Whiting (2003), this benefits the individual as well as the organization when proteges continually reassess their developmental needs in relation to changing workplace demands. Additionally, organizations may necessitate proteges to reassess their developmental needs based on reorganization or changes to the business environment (deJanasz, Sullivan & Whiting, 2003) and reduce their dependence on a single mentor (Higgins & Kram, 2001).

Compared to having a single mentoring or developmental relationship, De Castro, Sambuco et al.(2013), Lankau and Scandura (2000) and Baugh and Scandura (2000) have explored the benefits and outcomes of having multiple mentors. First, having more mentors may result in a greater total amount of career related or psychosocial mentoring being provided to the protege across all relationships (Dobrow Riza & Higgins, 2019; Dobrow & Higgins, 2005, ; Higgins & Thomas, 2005). This is significant because greater amounts of mentoring may lead to greater outcomes for proteges (Higgins et al., 2010). A study by Higgins et al. (2010) found that greater amounts of psychosocial support led to increased levels of optimism in the short term.

When they explored the level of optimism ten years later, they found that levels of optimism were associated with greater levels of psychosocial and career support (Higgins et al., 2010). Second, having more than one mentor may offer a greater variety of mentoring relationships that results in more comprehensive mentoring for the protege (De Castro, Sambuco et al., 2013; Montgomery, 2017) and spans the full range of their developmental needs (Chandler & Kram, 2005). Finally, Baugh & Scandura (2000) found that having more than one mentor may result in greater commitment to the organization, higher job satisfaction,

Formation and Development of Developmental Networks

Murphy and Kram (2010) refer to developmental networks as being egocentric because the network is developed and shaped by the individual. Chandler and Kram agree that the individual's developmental network consists of the relationships that are developmentally important to them, as they perceive it (Chandler & Kram, 2005). The size of the network varies between individuals, but typically includes about four individuals, as named by the protege (Poldony & Baron, 1997; Dobrow & Higgins, 2005). In their study of developmental networks, scholars offer practical advice for how individuals can foster their own developmental network. One aspect of network formation that scholars agree on is that re-assessing one's network based on changing developmental needs is necessary for growth and development of the protege (Chandler & Kram, 2005; Kram & Higgins, 2007; Montgomery, 2017; DeCastro et al., 2013; Chanland & Murphy, 2017). In the context of the workplace, the individual and organizations play a role in the formation and support of developmental networks (Chandler & Kram, 2005; Kram & Higgins, 2007; Montgomery, 2017).

The Individual's Role in Shaping Developmental Networks

As an investment in one's career (Srivastava, 2015), the individual is primarily responsible for forming and shaping their developmental network over time (Kram, 2010). Researchers recommend that individual's continue to invest in their own development by evaluating their network over time. This enables them to modify the composition of their network based on their evolving needs (Kram & Higgins, 2007) and to be responsive to changes in their workplace (Higgins & Kram, 2001; deJanasz, Sullivan, & Whiting, 2003) and in the external business environment (deJanasz, Sullivan, & Whiting, 2003). Several researchers offer practical advice for cultivating one's developmental network that includes conducting a needs assessment built on self-awareness (Shen, Cotton, & Kram, 2005; Kram & Higgins, 2007), initiating new developer relationships (Shen, Cotton, & Kram, 2005; DeCastro et al., 2013), identifying gaps in the composition of the network (Mongtomery, 2017; DeCastro et al., 2013), and ongoing maintenance and evaluation of the network (Chandler & Kram, 2005; Shen, Cotton, & Kram, 2015).

As a first step to developing one's network, researchers stress the importance of conducting a needs assessment that incorporates self-awareness and an understanding of personal goals (Shen, Cotton, & Kram, 2015; Kram & Higgins, 2007). Before reaching out to potential developers, individuals should take the time to develop an understanding of themselves to provide self-awareness of their "moods, emotions, strengths, weaknesses, needs and effect on others" (Shen et al., 2015, p.85). Additionally, Kram & Higgins (2007) explain that knowing oneself makes individuals better prepared for later interactions with developers to maximize the value of their support. Having increased self-awareness enables the individual to more accurately identify their development needs.

In conducting a development needs assessment, individuals should identify their professional goals (Montgomery, 2017), examine the context they are working in (Kram & Higgins, 2007) and consider their developmental stage (Chandler & Kram, 2005). Shen, Cotton & Kram (2015) argue that knowing your needs is an essential step, given the commitment it takes to initiate, develop and maintain relationships with developers within the network. Kram and Higgins (2007) refer to this as an “opportunity audit” (p.4). Considerations for the needs assessment include determining what types of resources are needed to fulfill particular professional goals and knowing what type of developer would be helpful. For example, for a specific professional goal an individual might determine whether it would be more beneficial to form a relationship with a developer from inside or outside the individual’s workplace. In another example, specific career goals may benefit more from developmental relationships with a peer versus a supervisor or more senior colleague.

Once an individual has identified who they may want to form relationships with, they must play an active role in seeking to initiate new relationships with potential developers (DeCastro, Sambuco et al., 2013). Scholars have examined factors that contribute to an individual’s ability to initiate and sustain relationships with developers (Shen, 2010; Chandler, Hall & Kram, 2010). Shen, Cotton, & Kram (2010) found that individuals who have stronger relational skills are able to more easily develop their networks during initiation and maintenance of the relationship. This is supported by Chandler (2009), Chandler et al. (2010), and Chandler, Hall, & Kram (2009) who reported that individuals with more relational skills were more likely to have larger and more diverse networks. Finally, Dobrow et al. (2012) and Kram and Higgins (2007) have explored the importance of outlining what the benefits of the relationship may be for the developer when reaching out to ask for assistance. Appealing to the benefits that the

relationship can bring for the developer may entice them to offer assistance and may foster a stronger relationship that results in mutual learning (Dobrow et al., 2012).

Once established, the individual should conduct ongoing monitoring of the composition of their network against their professional goals, developmental needs (Kram & Higgins, 2007), workplace context and business environment (Shen et al., 2015). Depending on how much change has occurred for the aforementioned reasons, this re-assessment of an individual's goals relative to the composition of their network (Montgomery, 2017) may be less or more involved than the original needs assessment. The re-assessment of an individual's developmental network may result in the continuation of some relationships and "letting go" of others in favor of those that support additional learning and development (Yip & Kram, 2015).

The Organization's Role in Shaping Developmental Networks

In addition to individuals, human resource practitioners and organizational leadership play an important role in encouraging and supporting individuals to foster their own developmental networks. Chandler and Kram (2005) assert that this should be part of an intentional effort to foster a "mentoring culture" through leadership development programs, education and training (p.561). Not only does this benefit individuals in their growth and development, it benefits the organization in helping to ensure employees stay up to date on the latest technologies and in response to changes in the workplace and the business environment. Organizations that do not invest in developing this culture and implementing supports for their employees will be at a competitive disadvantage relative to others who do so (Kram & Higgins, 2007). To realize these benefits, organizations can encourage and promote network development by educating proteges and developers, offering tools and resources to support the developmental relationships, offering formal training programs for mentors and proteges and facilitating formal

mentoring programs at their institutions (Chandler & Kram, 2005). Further, Ghosh, Haynes, and Kram (2013) suggest that organizations should include support for developmental networks in their overall leadership development strategy and plan.

Within the healthcare setting, there is a recognition of the value of having more than one mentor such as a network of individuals that can provide developmental support for the healthcare manager (Olson, Prybil, & Hilber, 2004; Walsh & Borowski, 1999). Additionally, organizations have recognized the merits of having multiple mentors and have begun implementing this into practice. In one instance, a multiple mentor approach was taken through the development of a leadership development program that paired a healthcare manager with many mentors to provide coaching and support with the goal of developing and strengthening competencies that were critical to the organization's success (Finney et al., 2012). This is one of few studies found within a healthcare setting that described how healthcare institutions are supporting developmental relationships with a variety of developers that aimed to enhance learning and development.

Developmental Network Characteristics

The developmental network characteristics that are of interest to scholars include network size, network content, network diversity, and network range (Dobrow Riza, & Higgins, 2019; Higgins & Kram, 2001). These characteristics change over time as proteges modify their developmental networks in response to their changing developmental needs (Dobrow Riza & Higgins, 2019; Higgins & Kram, 2001). Very little research has been done to examine how developmental networks change over time (Dobrow Riza, & Higgins, 2019; Srivasta, 2015) and in response to network intervention (Srivasta, 2015).

When studying developmental networks, researchers consider their size in terms of the number of developers a protege names as being influential at a point in time (Dobrow et al., 2019; Higgins & Kram, 2001). The size of the mentoring network is typically gathered using a name generator device (Higgins & Thomas, 2001; Dobrow & Higgins, 2005; Dobrow Riza, & Higgins, 2019; Murphy & Kram, 2010). This involves asking the protege to name those who “took an active interest in and concerted action to advance their career and who may assist them in personal and professional development” (Dobrow & Higgins, 2005, p.573).

In addition to considering the network’s size, scholars examine developmental network content by measuring the amount of developmental assistance that is provided by the developer to the protege. This is where theory and research on traditional mentoring intersects with the construct of developmental networks (Higgins & Kram, 2001). As originally identified by Kram (1985) in her seminal work, developmental assistance consists of two types of support, psychosocial and career related. In comparing developmental relationships to each other, the type and amount of developmental assistance that is provided varies in terms of amount and type (Kram, 1985; Higgins et al., 2010). Researchers have developed instruments for measuring the type and amount of developmental assistance that is provided, including those used by Castro and Williams (2004), Pellegrini and Scandura (2005) and Hu, Wang, Yang, and Wu (2014).

An additional characteristic of developmental networks, diversity, refers to the range and density of the developer relationships within it (Higgins & Kram, 2001). The range refers to the variation in what social groups the developer belongs to relative to the protege. For example, the developer may work for the same organization or community group or attend the same school as the protege. A network that is composed of developers from many different social

groups has a high range, whereas one that is composed of developers from the same social group has a low range. In contrast, the density of the network refers to the extent that the developers in a network know each other. For example, networks in which most or all of the developers know each other are said to have high density.

Finally, developmental networks should be examined in terms of their strength, that refers to the relational closeness of the developmental relationship between the protege and developer (Higgins & Kram, 2001). This is characterized by reciprocity between the protege and the developer where support is bi-directional between the pair. Developmental relationships that have stronger bonds are considered to have “strong ties” relative to relationships that have low reciprocity or exchange of support (Higgins & Kram, 2001). These are considered to have “weak ties” (Higgins & Kram, 2001, p.269).

Outcomes of Developmental Networks

Following the development of the network typology that was introduced by Higgins and Kram (2001), several researchers have examined developmental networks to better understand what characteristics influence developmental network outcomes (Dobrow, Chandler, et al., 2012). Much of the literature on traditional mentoring applies to the study of developmental networks. Specifically, the study of the types and amounts of developmental support that is provided by developers (Higgins, Dobrow, & Roloff, 2010; Higgins, 2000), referred to as mentoring functions. The types of mentoring functions were explored in prior sections. Additionally, much research has been conducted to examine what protege characteristics and environmental factors influence the formation of developmental relationships and the provision of assistance (Dobrow, Chandler, et al., 2012). This includes examination of moderating factors and mediating processes that influence developmental network structural characteristics and

content (Dobrow, Chandler, et al., 2012). Finally, scholars have empirically examined the outcomes of developmental networks in relation to the structural characteristics and content (Dobrow, Chandler, et al., 2012).

Several studies have explored the characteristics of developmental networks on outcomes such as job attitudes (Hetty van Emmerik, 2004; Higgins & Thomas, 2001; Murphy & Kram, 2010), protege attitudes towards work (Baugh & Scandura, 1999), organizational retention (Higgins & Thomas, 2001), job promotion (Higgins & Thomas, 2001) and career success (deJanasz et al., 2003; Higgins & Thomas, 2001). In studying outcomes of developmental networks, researchers have focused on studying the relationship between the characteristics of the developmental network and the relationship to outcomes. They have explored the effects of the size of the network, the network density, and the strength of ties on outcomes. Overall, the relationship between developmental network characteristics and the above stated outcomes has been positive (Murphy & Kram, 2010; Dobrow et al., 2012). However, a few studies have shown a negative relationship between developmental networks and career outcomes (Dobrow & Higgins, 2005; Baugh & Scandura, 1999).

Several studies have examined the characteristics of developmental networks and how they relate to network outcomes, such as intrinsic career success (van Emmerik, 2004), career satisfaction (Higgins, 2000; Murphy & Kram, 2010), optimism (Higgins, Dobrow, & Roloff, 2010), organizational retention and promotion (Higgins & Thomas, 2001) and salary level (Murphy & Kram, 2010). The developmental network characteristics that have been studied in relation to outcomes include the composition of the network (Higgins & Thomas, 2001; Murphy & Kram 2010), network size (Higgins, 2000; van Emmerik, 2004), and network quality, defined as the type and amounts of developmental assistance received, (Higgins, 2000; Higgins,

Dobrow, & Roloff, 2010). In these studies, relationship quality was evaluated in terms of the amount of developmental assistance provided to the protege.

In one study, Higgins and Kram (2001) examined the quality of the relationship of the primary developer in comparison to the entire set of developers in the network and how that related to career outcomes. They found that the amount of developmental assistance provided by the primary developer was positively related to the outcomes of work satisfaction and intentions to remain with the firm. This finding was true for both measures of network quality, the provision of career assistance and psychosocial support. However, there was not a positive relationship between the amount of assistance coming from the primary developer and organizational retention and promotion (Higgins & Kram, 2001). Additionally, they examined the relationship between the amount of assistance provided by the entire set of developers in the network and the same outcomes. Again, they found a positive relationship between the amounts of career assistance provided and both intentions to remain with the firm and the longer term outcome of organizational retention. A positive relationship was also found between the amount of psychosocial support provided and work satisfaction. In contrast to the findings for the primary developer relationship, there was no relationship between the amount of career support provided and work satisfaction. As shown in table 1.3, the overall findings show that the quality of the primary relationship is positively associated with short term outcomes like work satisfaction and intentions to remain with the firm. Whereas, the entire set of developers was positively related to longer term outcomes such as promotion and organizational retention (Higgins & Kram, 2001, p.241).

Table 1.3

Summary of Developmental Network Characteristics and Outcomes Research

Outcome	Developers	Network Characteristic	Relationship	Study
Work Satisfaction	Primary developer	Amount of career support provided (Career assistance and Psychosocial support)	Positive	Higgins and Thomas, 2001
Intentions to remain with the firm	Primary developer	Amount of Career assistance and Psychosocial support)	Positive	Higgins and Thomas, 2001
Organizational retention	Primary developer	Amount of career support provided (Career assistance and Psychosocial support)	Negative	Higgins and Thomas, 2001
Promotion	Primary developer	Amount of career support provided (Career assistance and Psychosocial support)	Negative	Higgins and Thomas, 2001
Intentions to remain with the firm	entire set of developers	Amount of career assistance	Positive	Higgins and Thomas, 2001
Work satisfaction	entire set of developers	Amount of psychosocial support	Positive	Higgins and Thomas, 2001
Work satisfaction	entire set of developers	Amount of career assistance	No relationship	Higgins and Thomas, 2001
Organizational retention	entire set of developers	Amount of career support	Positive	Higgins and Thomas, 2001
Work satisfaction, Intentions to	entire set of developers	Number of developers	Positive	Higgins and Thomas, 2001

remain with the firm				
Optimism	entire set of developers	Amount of psychosocial support received	Positive	Higgins, Dobrow and Roloff, 2010
Optimism	entire set of developers	Career support	No relationship	Higgins, Dobrow and Roloff, 2010

A second longitudinal study examined developmental network quality and found a relationship to the level of optimism of the protege (Higgins, Dobrow, & Roloff, 2010). Similar to Higgins and Thomas (2001), the researchers, Higgins, Dobrow, and Roloff, also evaluated outcomes in relationship to network quality, defined as the amount of developmental assistance provided. They found a positive relationship between the amount of psychosocial support provided and levels of protege optimism. However, no relationship was found between optimism and the amount of career support provided. Like Higgins and Thomas (2001), they sought to learn how networks change over time and examined the developmental networks of proteges across a period of ten years (Higgins, Dobrow, & Roloff, 2010). Interestingly, they found that networks that showed increasing levels of developmental assistance being provided over time, were positively associated with levels of optimism later on (Higgins, Dobrow, & Roloff, 2010). These findings suggest that differences and changes in an individual's developmental networks over time can change outcomes, such as optimism (Higgins et al., 2010).

Although most empirical studies of developmental networks have found a positive relationship between having a network and outcomes, some studies have found a negative relationship (Dobrow & Higgins, 2005; Baugh & Scandura, 1999). In one of few longitudinal studies, Dobrow and Higgins examined the developmental networks of MBA students and the

relationship to their clarity of professional development. They gathered data on the protege's networks three times over a five year period to measure its density (Dobrow & Higgins, 2005). Additionally, for the second and third wave of the study, they measured clarity of professional identity (Dobrow & Higgins, 2005). Pulling from developmental network theory, they defined network density as the number of individuals who know each other as a percentage of the "number of possible ties in the entire network" (p. 573).

They found that there was a negative relationship to clarity of professional identity. This was in support of their hypothesis that as network density increased, clarity of professional identity decreases. Dobrow and Higgins (2005) explained that this suggests that having a denser network increases the redundancy of information available to the protege that could foster clarity of professional identity (p.578). Although their findings showed a negative relationship between network density and clarity of professional identity, they concluded that the study demonstrated that changes in individual's networks over time do have the opportunity to improve their careers through network intervention (Dobrow & Higgins, 2005).

Another study by Baugh and Scandura (1999) found that role conflict for the protege increased when the protege had more than one developmental relationship. The authors offered three explanations for this finding. One, different developers may offer advice or guidance that conflicts with the others, resulting in increased role conflict. A second explanation is that having more developers may "result in a more complex perception of the organizational environment" that increases role conflict (Baugh & Scandura, 1999, p.514). Finally, they suggest that the protege may be experiencing role conflict and seek out multiple mentors in order to address it. Echoing the conclusion of Dobrow and Higgins (2005) the results of this study also provides

evidence that individuals and organizations may be able to change outcomes for the protege's professional development by changing the composition of one's network.

Developmental Network Change

Scholars acknowledge that developmental networks are dynamic and should change over time in response to changing environments and the evolution of developmental needs (de Janasz, S.C., Sullivan, S.E. & Whiting, V., 2003; Kram & Higgins, 2007), however few empirical studies have examined how developmental networks change over time (Dobrow Riza, & Higgins, 2019; Dobrow & Higgins, 2005). In a review of the available literature, very few studies have examined how developmental networks change across two or more points in time (Dobrow Riza & Higgins, 2019; Dobrow & Higgins, 2005; Higgins, Thomas, & Dobrow, 2010; Higgins & Thomas, 2001). A recent study by Dobrow, Riza and Higgins (2019) significantly advanced the study of developmental networks by conducting a first of its kind longitudinal study of network change.

They studied the developmental networks of MBA students over a ten year period and across four points of time to examine how their network characteristics changed. They gathered data on the network content (amount of mentoring support received), network diversity (network density), network tie strength (psychological closeness and communication frequency), and network size (Dobrow et al., 2019). They found that network characteristics changed over time, but were surprised to find that the characteristics did not change together, either "synchronously or as trade-offs" (Dobrow et al., 2019, p.240). They noted that the two types of mentoring support measured, career and psychosocial, did not change together. Overall, they found that smaller networks provided more mentoring support, more diversity, and stronger ties compared to larger networks (Dobrow et al., 2019, p.240). They also examined the

relationship between the participant's industry at baseline and the change in number of employers over time but found no relationship to network characteristics (Dobrow et al, 2019, p.240).

In discussing the results, the researchers argue that existing theory cannot explain the findings of their study. Specifically, mentoring theory has not fully explored how relationships change over time specifically. Social network theory and development stages theory are relevant to the study of developmental networks but require additional theoretical development to be utilized. Dobrow et al. recommend that a more comprehensive theory of developmental networks needs to be developed that includes examination of the following: "multiple characteristics of developmental networks, the inner workings of developmental networks, factors impacting development networks, and time" (2019, p.241).

In the meantime, they describe the practical implications for individuals with their careers and those responsible for helping others to manage their career, such as managers or human resource development practitioners. For individuals, this includes the importance of recognizing that networks change over time and taking meaningful care to play an active role in monitoring, shaping and cultivating their network over time. According to Dobrow Riza and Higgins (2019), given the results of the study showed smaller networks had stronger ties and were associated with higher levels of support, it may not be better to have a larger network. Instead, individuals may be better off investing their time and cultivating fewer relationships. Similarly, organizations should leverage these findings to cater their development opportunities to support individuals over time, knowing that their networks are not static and will change. This includes providing opportunities to foster and cultivate new and existing relationships and protecting individual's capacity to cultivate high quality relationships (Dobrow et al., 2019).

Developmental Networks: Limitations and Recommendations for Future Research

There are several limitations to the current body of research on developmental networks, leaving much opportunity for future research on network intervention, change and outcomes. As Yip and Kram (2015) point out, developmental network research is only starting to be applied in some fields, such as healthcare. Thus, there is great opportunity to extend what is known about developmental networks across a variety of contexts.

First and foremost, there is a lack of research that examines developmental networks across contexts and longitudinally. Although there have been longitudinal studies of developmental networks over time and how that relates to outcomes, additional research is needed across a variety of contexts (Higgins & Thomas, 2001; Higgins, Dobrow & Roloff, 2010). Overall, there are few studies that examine how developmental networks change over time in relation to outcomes and across a variety of contexts (Dobrow & Higgins, 2005). For example, the strength of studies by Dobrow et al. (2019), Higgins and Thomas (2001) and Dobrow and Roloff (2010) were that they studied network change outcomes longitudinally. However, they did not study these changes across different contexts. Therefore, they were not broadly generalizable to other professions than those that were studied.

Additional research into this is needed if researchers want to leverage the research to give individuals and organizations a better understanding of how networks change over time and how that relates to outcomes (Srivastava, 2015). However, this must be paired with research that studies network intervention and how that changes networks over time and ultimately impacts outcomes. According to Srivastava (2015), very little is known about network intervention. Expanding the research in this area would provide insight for individuals and organizations about what types of network intervention lead to desired outcomes in relation to

professional development. This would enable individuals and organizations to target strategies for network intervention that are aligned with an individual's professional goals or with the desired business goals of the organization related to professional development for their staff.

Chapter Summary

A literature review was conducted to explore the primary and secondary research questions for this study, to determine if there is a relationship between having a developmental network for healthcare managers and the development of job competencies. The first stream of research focused on the healthcare environment and provided context for understanding the rationale for the study. In light of the challenging healthcare environment, the importance of healthcare manager competency to healthcare organizational performance and success was established. This provided the rationale for the importance of healthcare manager competency development within healthcare organizations.

With the purpose for the study established, a second stream of literature on development support (mentoring) and developmental networks was explored. A review of the literature showed that developmental networks are used by individuals and organizations for professional development, including for job competency. Several studies have shown that developmental networks offer individuals more support as compared to having a single developmental relationship. Additionally, several studies have found a positive relationship between having a developmental network and job outcomes. Although developmental networks have been studied in the context of the workplace, a search of the literature did not find any studies that explored whether there is a relationship between having a developmental network and healthcare manager job competency. Thus, this literature review demonstrated that there is an opportunity

to further study and explore the developmental networks of healthcare managers and their impact on job outcomes, such as competency development.

CHAPTER THREE: METHODOLOGY

Overview of the Chapter

This study examined the developmental networks of healthcare managers in the United States from the perspectives of the managers. The purpose of the study was to determine if there is a relationship between developmental network characteristics and the development of self-reported job competencies for healthcare managers. To study this, a web survey was sent to those working in healthcare management roles at a large multi-site, multi-region academic medical center with many locations across the states of Minnesota, Wisconsin, Florida and Arizona. This survey was conducted with permission and sponsorship from senior leadership at the institution. The web survey asked healthcare managers to list and identify those developers (mentors) that offered them developmental assistance (mentoring support). For each developer, they were asked what types of developmental assistance had been provided. Additionally, they were asked questions about the developer, such as the relationship between the developer and the healthcare manager and whether the developer works for the same organization as the healthcare manager. Finally, the participants were asked to indicate which developers knew each other. These data were then analyzed using various types of statistical analysis to understand the strength and direction of the relationship between the developmental network characteristics measured and the self-reported job competencies for healthcare managers, from their perspectives.

Research Question

As described in chapter one, this quantitative study examined the relationship between the developmental network characteristics and self-reported job competency for healthcare

managers. This study examined these relationships from the perspectives of the healthcare managers. The results of the study will be examined through the lens of Higgins' and Kram's developmental network typology (2001). The typology incorporates the four developmental networks characteristics that are included in the research question.

Research question: For healthcare managers, what is the relationship between job competency development and the quality, size, density, and range of the developmental network?

Study Design

Given that very little is known about healthcare managers and their developmental networks, this study sought to explore whether a relationship exists between the developmental networks, based on their characteristics, and the development of self-reported job competencies for healthcare managers. Therefore, a cross-sectional survey design was used to establish this relationship "at a single point in time" (Remler & Ryzin, 2015). Additional studies that include longitudinal data will be needed to develop a deeper understanding of the developmental networks of healthcare managers. This includes gathering data points across multiple periods of time to understand how the developmental networks of healthcare managers change over time in response to intervention and environmental influences and how those changes influence outcomes, such as job competencies (Dobrow & Higgins, 2005; Dobrow & Riza, 2019).

Remler and Van Ryzin (2015) state that "to do a survey, you must understand the topic fairly well already to know what specific, structured questions to ask people" (p.212). Although there is a paucity of research that examines the relationship between healthcare manager's developmental networks and job competencies, several frameworks and survey tools exist for examining developmental networks and job competencies that informed the study design.

Therefore, a survey was a logical choice for this study, leveraging the questionnaires already developed to measure developmental assistance provided and the characteristics of developmental networks in alignment with existing frameworks.

For this study, a survey was developed that leverages survey instruments that have already been designed, utilized, and validated by researchers to measure healthcare manager job competencies (ACHE, 2021) as well as the quality, size, density and range of developmental networks (Higgins & Kram, 2001; Murphy & Kram, 2010; Dobroz Riza & Higgins, 2019). Several researchers have utilized similar questionnaires to measure developmental networks in terms of their density, size, and range (Higgins & Kram, 2001; Dobrow & Higgins, 2005; Murphy & Kram, 2010; Dobroz et al., 2019). This is referred to as a “name generator device” where participants are asked to list the individuals who “assist in [their] personal and professional development” within the survey (Dobrow & Higgins, 2005, p.573). The number of individuals listed by each participant provides data on the size of the network. For each developer listed, the participants are asked questions that enables researchers to measure the density and range of the participant’s network (Higgins & Kram, 2001; Dobrow & Higgins, 2005; Murphy & Kram, 2010; Dobroz Riza & Higgins, 2019).

To measure network quality, researchers often utilize the mentoring functions questionnaire (MFQ-9) to measure the amount of developmental assistance that is received by proteges (Scandura, 2004). Adapted from the 15-item measure that was originally developed by Ragins and Scandura (1993), the MFQ-9 has subsequently been used by researchers to examine the amount of developmental assistance provided by developers (Murphy & Kram, 2010). To examine developmental network quality, this scale is utilized in conjunction with the aforementioned name generator device. The name generator approach is used to prompt

participants to list the developers in their network while the MFQ-9 (Scandura, 2004) or similar instruments are used to measure the amount of developmental assistance received by those named developers.

A final component of the survey is the measurement of job competencies for healthcare managers that can be assessed using the 2021 ACHE Competencies Assessment Tool (ACHE, 2021). As mentioned in chapter one, this tool is made publicly available by the American College of Healthcare Executives (ACHE), a professional association within the field of healthcare management (ACHE, 2021). Updated by the ACHE annually, this tool was developed in alignment with the Health Leadership Alliance (HLA) competency framework that was developed by a consortium of six professional associations within the healthcare field. Once developed, it was validated by experts in the field (Stefl, 2008). To assess healthcare manager job competency, the tool measures managers against five competency domains. The five domains are leadership, communication and relationship management, professionalism, business skills and knowledge and knowledge of the healthcare environment (ACHE, 2021). There are a number of competencies within each domain that are assessed on a five point likert scale and equates the score to a competency level. The developers of the tool leveraged the Dreyfus model, with a score of 1 representing the novice learner, a score of 3 indicating competency and a score of 5 equates to expert. See Table 3.1 below for the definitions of each competency level.

Table 3.1

Competency Level Descriptions

Competency Level (Score)	Description
Novice (1)	“You have the level of experience gained in a classroom setting or on-the-job training. You are expected to need help when

	performing this skill.”
Competent (3)	“You are able to successfully complete the competency as requested. Help from experts may be required from time to time, but you can usually perform the skill independently”.
Expert (5)	“You are known as the expert in this area. You can provide guidance, troubleshoot and answer questions related to this competency”.

Given the length of the competency assessment tool and the purpose of this study, not all competencies were included in the survey questionnaire that was developed. The competencies assessment tool is lengthy and includes dozens of competencies across five domains and twenty-three sub domains, with several competencies aligned to each of the sub-domains. The purpose of this study is to establish a relationship between competency development and the developmental networks of healthcare managers, not to establish causation or to establish a relationship between all competencies and the network characteristics of healthcare manager’s developmental networks. Therefore, a full self-assessment of all competencies was not needed to explore the relationship between having a developmental network and the assessment of job competencies. A single competency domain was selected, leadership, and two sub-domains within it, leadership skills and behavior and organizational climate and culture. These sub-domains were selected because they are domains likely to be of focus to a healthcare manager early on in their career, who may be new to leading teams and navigating organizational culture as a manager.

Participants and Sampling

Participants

The participants for this study were individuals working in healthcare management and administration within a large multi-site, multi-region academic medical center with locations in

the midwest, southwest and southeastern United States. The participants were provided with the definition of healthcare manager, as operationalized by this study, in the web survey. For the purposes of this study, healthcare managers are defined based on their position within the organizational hierarchy of their workplace and their job functions. The healthcare manager is positioned within the organizational hierarchy between senior leadership and other staff, such as clinicians and allied health staff who have direct interaction with patients (Awowale, 2017). They perform a range of management functions including responsibility and decision making in the areas of budget management, strategic planning, resource allocation, staffing, employee engagement and acquisition of technology (Awowale, 2017, p.61; Vizzuso, 2015). The study participants were asked to indicate if their work role met the description of healthcare manager that was provided by responding “yes” or “no”.

Sampling

This quantitative study utilized a web survey to examine the developmental networks of healthcare managers and the correlation to job competency development from the perspectives of the managers themselves. In survey research, it is important to obtain a representative sample of the subject being studied (Creswell & Creswell, 2018). With the goal of obtaining a representative sample of those working in healthcare management that would be generalizable, the Minnesota Chapter of the American College of Healthcare Executives (ACHE) was asked to support this research by providing contact information for their members for the purposes of study recruitment. Although they were supportive of the research, the organizational policy prohibits recruitment of their members for any reason. The lack of access to a representative population of individuals required a pivot in the sampling approach. With the goal of obtaining access to a large group of individuals working in healthcare management, individuals working

in healthcare management at a large multi-site, multi-region academic medical center were recruited to participate in this study.

Sample Size

The sample size for this study was 534 individuals who were identified by senior leaders within the academic medical center as working in healthcare management or healthcare administrative roles. This included individuals working across all locations within the large academic medical center across all sites within the three regions in which the organization has a presence, the Midwest, the Southwestern and the Southeastern United States. Additionally, this included individuals who telework some or all of the time.

Data Collection

Institutional Review Board

With approval from the dissertation committee, the IRB application, web survey and recruitment emails were submitted to Hamline University's Institutional Review Board. Subsequently, before they would approve the application, Hamline University's Institutional Review Board requested approval from the Institutional Review Board of the academic medical center where the survey was being conducted. An executive leadership sponsor from the academic medical center was identified and their name was submitted to the Hamline University's Institutional Review Board. Additionally, a second IRB application, web survey and recruitment emails were submitted to the academic medical center's Institutional Review Board. Subsequently, the Hamline University's Institutional Review Board approved the application on July 12, 2022. After making minor revisions to ensure compliance with internal policy, the application was approved by the academic medical center's Institutional Review Board on July 22, 2022 . On August 2, 2022, data collection began.

Survey Instrument

A web based survey tool was designed to gather data from the healthcare managers who participated in this study (Appendix A). As discussed in the section above, the survey was developed by combining previously validated survey instruments from prior studies into one questionnaire that was delivered using Google forms. All questions within the survey were closed-ended questions and the questionnaire was divided into three sections (Appendix A).

The first section of the survey asked participants to review the definition of healthcare manager and answer questions about their role and years of experience within healthcare management (Appendix A). After reading the definition of healthcare manager, participants were asked whether they are currently working as a healthcare manager. For those who answered “no”, the survey was ended. Those who answered “yes” were prompted to complete the remaining questions in the section that asked how many years they had been working as a healthcare manager. As shown in Appendix A, study participants were asked to list their job title and indicate their highest level of education achieved. These questions were asked to determine if there was a correlation between years of experience and highest level of education achieved as a possible explanation of job competency outcomes as compared to the network characteristics collected in section two.

The second section of the survey (Appendix A) was developed using the name generator device approach and related questions about network characteristics that have been used in studies on network development (Higgins & Kram, 2001; Dobrow & Higgins, 2005; Murphy & Kram, 2010; Dobroz Riza & Higgins, 2019). At the beginning of the section, the participants were prompted with this instruction: “within the past year, please consider the people who you

believe currently take an active interest in and concerted action to advance your career. They may be people that you have worked with or work with currently, friends, or family members. These individuals may assist you with personal as well as professional development. (Dobrow Riza & Higgins, 2019)". They were then asked to name each developer and answer the MFQ-9 questionnaire for each developer (Scandura, 2004). Following the MFQ-9 questions, the participants were asked to indicate what social arena they know the developer from, work, family, school, community group or professional organization. This is consistent with how other studies have measured the range of developmental networks, based on whether the developers belong to the same social arena as the protege (Dobrow & Higgins, 2019; Murphy & Kram, 2010). Finally, for the last question in the section, the participant was asked to indicate whether each developer knew the others (Appendix A).

In the last section, the participants were asked to answer demographic questions about themselves. They were asked to provide their gender and ethnicity because these two protege characteristics have been known to influence several factors related to mentoring for the protege. These include difficulty and barriers to finding a mentor for women, black, Indigenous, & People of Color (BIPOC) (Davis, Jones, Settles, & Russell, 2022; Banerjee-Batist, Reio, & Rocco, 2019) and differences in the amount and type of developmental assistance received between women and men (Sosik & Godshalk, 2000). Additionally, researchers have called for further examination of individual differences that includes gender and race and how that influences proteges' experience with mentoring (Banerjee-Batist et al., 2019).

Procedure

The individuals were recruited for this study through the organization's email communication system and were sent three emails inviting them to participate in the study (Appendix B). The organization maintains email distribution lists for those working in healthcare management roles, organized by geographical region. In total, four separate distribution lists were utilized to contact all individuals working in healthcare management roles across all sites within the three regions in which the organization operates, the Midwestern, the Southwestern and the Southeastern United States. The recruitment emails were sent three times to all individuals who were members of these distribution lists because the survey was anonymous and the researcher was not able to contact only those who had not yet participated in subsequent email attempts. The study recruitment began on August 2, 2022 and the final recruitment email was sent on October 11th. The survey was closed on October 17, 2022.

Data Analysis

The data analysis for this study consisted of a four step process. For the first step, the raw study data were scored and calculations were made using Microsoft Excel. For the dependent variable of job competency and the independent variables of network size, quality, density and range, calculations were made to derive single values for each to enable statistical analysis in later steps. Other variables collected, including participant's race, gender, years of experience and education level, were categorized. In the second step, the data were loaded into proprietary statistical software to produce scatterplots (for continuous variables) and box plots (for categorical variables). These were used to ensure the data were normally distributed before proceeding to step three. Using the same software for step three, correlations and ANOVA statistical tests were run between the dependent and independent variables to understand the relationships between each set of variables. These tests were used to determine whether the

variables were significantly related to each other. Those variables that were related to each other were modeled using multiple linear regression.

Step 1: Scoring of the Study Variables

Independent and Dependent Variables

This study examined several independent variables and their relationship to the dependent variable, job competency for healthcare managers. The independent variables for this study and their relationship to the research question are listed in Table 3.2. The independent variables included network quality, size, range and density. The dependent variable was job competency for healthcare managers.

Table 3.2

Independent and Dependent Variables, Research Question Component, and Survey Items

Variable	Research Question Component (underlined)	Item on Survey
Job Competencies (dependent variable)	What is the relationship between <u>job competency</u> development and the quality, size, density, and range of the developmental network?	Question 38 and 39: job competencies
Network size (independent variable)	What is the relationship between job competency development and the quality, <u>size</u> , density, and range of the developmental network?	Question 7: Network size
Network quality (independent variable)	What is the relationship between job competency development and the <u>quality</u> , size, density, and range of the developmental network?	Questions 9, 13, 17, 21, 25 : Mentoring support received
Network Density (independent variable)	What is the relationship between job competency development and the quality,	Questions 28-37: Do the mentors know each other?

	size, <u>density</u> , and range of the developmental network?	
Network Range (independent variable)	What is the relationship between job competency development and the quality, size, density, and <u>range</u> of the developmental network?	Questions 8, 12, 16, 20, 24: What is the primary social arena you know your mentor from (for all mentor pairs reported in the participant's network)

Job Competencies

Within the survey, participants were asked to assess each job competency on a scale from 1-5, from novice (1) to expert (5). Across the two leadership subdomains of leadership skills and behavior and organizational climate and culture there were 21 job competencies that participants were asked to assess. The scores of the individual job competencies for both domains were summed to calculate a total job competency score. Therefore, the range of possible scores ranged from 21 through 105.

Developmental Network Quality

To measure network quality, the average amount of support provided by the individual's entire network was calculated, consistent with prior research (Murphy & Kram, 2010; Higgins, 2000; Higgins & Thomas, 2001). Each participant indicated the amount of support provided by each individual developer using a 5-point Likert scale that ranged from "strongly disagree" to "strongly agree". These ratings were converted to numeric numbers as follows: "strongly disagree" = 1, "disagree" = 2, "neutral" = 3, "agree" = 4, "strongly agree" = 5. The amount of support was totaled across all developer relationships reported by each participant and the average amount of mentoring support across the total number of reported relationships was calculated. This yielded a single value that was used to represent the quality of each participant's developmental network. Thus, the range of possible scores was 9 to 45.

Developmental Network Size

Each participant was asked to report the size of their developmental network, up to a maximum of 20, to capture the total size of the participant's current network. Therefore, developmental network size could have ranged from zero to twenty. The network size was then categorized as shown in table 3.3.

Table 3.3

Categorization of developmental network size

Number of Mentors	Category
0-2	1
3-5	2
6 or more	3

Developmental Network Density

The developmental network density was calculated in alignment with the existing literature, that defines developmental network density as the “the proportion of present dyadic ties to all potential ties” (Wang, Sung, Chen, & Huang, 2017, p.120). Consistent with prior research, this was calculated by taking the total number of actual ties in the network as a percentage of the total number of possible ties in the network, including the participant's own ties with their developers (Li, Gong, & Liao, 2022; Wang, Sung, Chen, & Huang, 2017; Dobrow & Higgins, 2005). In the survey, each participant was asked to name up to 5 mentors. For each mentor they listed, they were asked if that mentor knew the other mentors. Each participant was able to list up to 5 mentors, resulting in up to 15 mentor pairs that could have known each other, counting each mentor dyad as one. The below table lists the possible knowing ties by mentor count. For each pair, participants indicated whether the pair knew each

other by answering “yes,” “maybe,” “no” or “choose not to respond.” For each “yes” response, a count of 1 was assigned. Those responses where the participant responded with “maybe,” “no” or “choose not to respond” were not counted. The total responses across all mentor pairs were calculated to determine a final score. Therefore, for developmental network density, the range of possible scores for this variable was from 0 to 15.

The below table shows the possible ties based on the total number of mentors reported by each participant. For example, a participant who reported a total of two mentors would receive a count of two to represent their relationship with each mentor. If, for example, the participant said that both of their mentors knew each other, the count of dyadic ties between mentors would be one. Therefore, in that example, the participant’s network density would be a ratio of three knowing ties out of four possible ties. Numerically, the density for this example would be calculated as 0.75.

Table 3.4

Developmental Network Density Scoring

Total number of mentors listed by each participant	Count of Dyadic Ties: Between participants and their Mentors	Count of possible knowing ties: Between mentors	Sum total of all knowing ties: between all pairs (sum of dyadic and possible knowing ties)	Density Ratio (Count of sum total of all knowing ties between pairs as a ratio of total possible knowing ties)	Numeric Score
1	1	Not applicable	1	1/1	1
2	2	0-2	2-4	2/4 - 4/4	0.5-1
3	3	0-3	3-6	3/6 - 6/6	0.5-1
4	4	0-6	4-10	4/10 - 10/10	0.4-1
5	5	0-10	5-15	5/15 - 15/15	0.33-1

Once scored, the network density was categorized as shown in Table 3.5 to enable the statistical analysis.

Table 3.5

Categorizations for Developmental Network Density

Density	Category
0-0.1	1
0.11-0.2	2
0.21-0.3	3
0.31-0.4	4
0.41-0.5	5
0.51-0.6	6
0.61-0.70	7

0.71-0.8	8
0.81-0.9	9
0.91-1.00	10

Developmental Network Range

For each developmental relationship reported (up to 5), participants were asked to indicate what social arena they knew the developer from. There were five choices, that included “work”, “family”, “school”, “community”, “professional organization” and “other.” The density of each participant’s developmental network was calculated by counting the number of unique locations reported across all mentoring relationships. For example, if a participant reported having one relationship from “work”, two from “school” and three from “community”, they would receive a score of “3”. This score represents the number of unique relationship types across the developers in their reported network. The below table provides a summary of the methodology used to score the range of each participant’s mentoring network. Following this, the network range score was categorized as shown in Table 3.6.

Table 3.6

Developmental Network Range Scoring

Number of unique social arenas reported across the network	Score
1 type of social arena reported	1
2 types of social arena reported	2
3 types of social arena reported	3
4 types of social arena reported	4
5 types of social arena reported	5

Control Variables

In addition to the independent and dependent variables, control data were gathered about the participants and their networks and were categorized. These include, years of healthcare experience, years of healthcare management experience, level of education obtained, participant race and participant gender. The responses for each of these variables represent categories, rather than a continuous score. Therefore, the responses were converted into categorical scores for each variable as described (Cresswell & Cresswell, 2018, p.157).

Healthcare Experience

In question 5 of the survey, participants were asked to report how many years of healthcare experience they had across six categories. The categories were converted into a score as shown in Table 3.7.

Table 3.7

Categorization of Healthcare Experience

Category	Score
Less than five years	1
5-10 years	2
10 years or more	3

Healthcare Management Experience

In question 4 of the survey, participants were asked to report how many years of healthcare experience they had across five choices. The six choices were categorized as shown in Table 3.8.

Table 3.8

Categorization of Healthcare Experience

Category	Score
Less than five years	1
5-10 years	2
10 years or more	3

Education Level

In question 6 of the survey, participants were asked to report the level of education they have completed across six categories. The six choices were categorized as shown in Table 3.9.

Table 3.9

Categorization of Education Level

Category	Score
No college degree	1
Some college	2
Associates degree	3
Bachelor's degree	4
Graduate degree	5
Doctorate degree	6

Participant's Race

In question 40 of the survey, participants were asked to report their race across eight choices.

The eight choices were converted as shown in Table 3.10.

Table 3.10

Categorization of Participant's Race

Category	Score
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Non-white	1
White	2
Prefer not to answer	3

Participant's Gender

In question 39 of the survey, participants were asked to report their gender across four categories. The four categories were converted into a score as shown in Table 3.11.

Table 3.11

Categorization of Participant's Gender

Category	Score
Female	1
Male	2
Non-binary	3
Prefer not to answer	4

Step 2: Scatterplots and Box Plots

In step two, the data were analyzed to look for patterns in the responses for each variable using scatterplots, box plots, and histograms. To do this, the data were loaded into proprietary statistical software to produce scatterplots (for continuous variables) and box plots (for categorical variables) as well as histograms for network quality and job competency. Only two variables were loaded into the software as continuous variables, job competency and developmental network quality. The other variables were loaded into the software as categorical variables, including network size, network density, network range, race, gender, years of healthcare management experience, years of healthcare experience, and education level.

Step 3: Correlations and Anova

Using the same software for step three, correlation and one-way ANOVA calculations were run on the independent, dependent, and control variables. For those variables that were continuous (network quality and job competency), correlations were calculated to measure the strength and direction of the linear relationships between each set of variables. For the categorical variables, one-way ANOVA tests were performed to compare the effect of each of the categorical variables on job competency. The variables that were shown to have a significant relationship or known to, based on other studies, were included in the linear regression models that were run in step four.

Step 4: Multiple Linear Regression

In step four, the variables that showed significance from step three were used to run multiple linear regression models for each of the four developmental network characteristics. The developmental network characteristic variables were network quality, network range, network density, and network size. The multiple linear regression models were run using the same statistical software from previous steps. These results are reported in chapter four.

Summary

This chapter described the methodology that was used to explore the research question for this study. The research question examines the relationship between job competency development and network characteristics for healthcare managers, including network size, quality, density and range. The study design included development of a web survey that utilized previously validated question sets to evaluate the constructs of developmental network characteristics, including size, density, quality and range, and job competencies for healthcare managers. Volunteer participants were recruited from those working as healthcare managers at a

multi-site, multi-region academic medical center. Once the survey was closed, a multi-step data analysis process was completed that included categorization of variables and statistical analyses using statistical software, including correlations and linear regression modeling for variables that were found to be significantly related to the dependent variable. The findings of the multi-step data analysis will be reported and discussed in the following chapter. Additionally, the findings will be discussed as they relate to the literature review.

CHAPTER FOUR: ANALYSIS OF RESULTS

Introduction

The purpose of this study was to examine the developmental networks of healthcare managers and the relationship between the development of self-reported job competencies. The study posed the research question: what is the relationship between the developmental network characteristics of size, density, range, and quality and job competency? As described in chapter three, the data gathered through the survey were categorized and statistical analyses were run to understand the significance of the relationships between the dependent variable of job competency and independent variables of network size, density, range and quality. The results of this study are reported in this chapter, including descriptive statistics and results of the statistical tests run, including one-way ANOVA, correlations, and multiple linear regression models. The results are discussed as they relate to the research questions, including an examination of the connections to the literature review.

Descriptive Statistics

The descriptive statistics are summarized as shown in table 4.1 for the full sample of 108 responses. This includes the counts, percentages and ranges for the categorical variables, network density, network size, and network range. For the continuous variables, network quality and job competency, counts, percentages, means, and standard deviations are listed. Listed first in the table are the demographic variables of race, gender, years of healthcare experience, years of healthcare management experience, and education level. Following those, the independent variables of network size, network density, network range, and network quality are listed. Lastly, the dependent variable of job competency is listed.

Table 4.1

Descriptive Statistics: Counts, Percentages, Means, Standard Deviations

Variable	<i>n</i> = 108
	Count (Percentage)
Gender	
Female	78 (72.22%)
Male	28 (25.93%)
Prefer not to answer	2 (1.85%)
Race	
White	101 (93.51%)
Non-White	7 (6.48%)
Years of Healthcare Experience	
Less than 5 years	13 (12.04%)
5-10 years	12 (11.11%)
10 years or more	83 (76.85%)
Years of Management Experience	
Less than 5 years	24 (22.22%)
5-10 years	26 (24.07%)
10 years or more	58 (53.7%)
Education Level	
Bachelor's Degree	17 (15.74%)
Graduate Degree	84 (77.77%)
Doctorate Degree	7 (6.48%)
Number of Mentors	
0-2	30 (27.77%)
3-5	48 (44.44%)

6+	30 (27.77%)
Network Range	
1	64 (59.26%)
2+	44 (40.74%)
Network Density	
0.0-0.1	0 (0%)
0.11-0.2	0 (0%)
0.21-0.3	0 (0%)
0.31-0.4	18 (16.67%)
0.41-0.5	26 (24.07%)
0.51-0.6	18 (16.67%)
0.61-0.7	14 (12.96%)
0.71-0.8	17 (15.74%)
0.81-0.9	8 (7.4%)
0.91-1.00	7 (6.48%)
<hr/>	
	Mean (standard deviation)
Network Quality	36.481 (3.82)
Job Competencies	78.176 (12.26)
<hr/>	

Of the 108 participants, 72.22% were female, 25.93% were male and 1.85% of respondents said that they preferred not to answer. For race, the sample was predominantly white (93.51% of responses) and 6.48% said that they were a race other than white. For years of healthcare experience, 12.04% reported having less than five years of experience, 11.11% had five to ten years of experience and 76.85% had ten years of experience or more. The distribution changed slightly for years of experience in healthcare management. For this, 22.22% reported

having less than five years of experience, 24.07% reported having five to ten years of experience, and 53.7%, or a majority of the participants, reported have more than ten years of experience. None of the participants reported having an education level lower than a bachelor's degree. Of the responses, 15.74% had a bachelor's degree, 77.77% had a graduate degree, and 6.48% had a doctorate degree.

The four independent variables of network range, network density, and network quality are listed next in the table. For network size, the majority of the respondents indicated that they had more than two mentors with 27.77% reporting that they have zero to two mentors. For the others, 44.44% responded that they have three to five mentors and 27.77% responded that they have six or more mentors. For network range, 59.26% of respondents indicated that they knew their mentor(s) from one social arena only. Whereas, the others indicated that they knew their mentors from two or more social arenas. Of these, 37.04% reported knowing their developers from at least two social arenas, 2.77% from three social arenas and .93% from four social arenas. For network density, there were no respondents with a network density below 0.31. For the other categories, 16.67% of participants had a network density ranging from 0.31-0.40, 24.07% had a score ranging from 0.41-0.5. Of those with a density greater than 0.5, 16.67% had a score ranging from 0.51-0.60, 12.96% had a score ranging from 0.61-0.7, and 15.74% had a score ranging from 0.71-0.8. Amongst those with scores greater than 0.8, 7.4% had a score ranging from 0.81-0.9 and 6.48% had a score ranging from 0.91-1.00. For network quality, the response mean was 36.48 and responses ranged from 17.6 to 41.33, with a standard deviation of 3.824. With a possible range of 9-45, respondents reported receiving a significant amount of support across their developmental network.

Lastly, table 4.1 lists the mean score for self-reported job competency and network quality. The respondents had an average self-reported job competency score of 78.176 with a standard deviation of 12.26. The mean score for network quality was 36.481 with a standard deviation of 3.82.

Correlations

The results of the correlation analysis that was run for the variables of mentoring quality and total competency showed that there was not a significant relationship between developmental network quality and competency, with a correlation coefficient of 0.0029. A correlation value close to -1 or 1 is considered significant and indicates a strong linear relationship between two variables. In contrast, a correlation value near zero indicates that there is no linear relationship between the two variables. Therefore, the correlation coefficient of 0.0029 indicates that there is no significant relationship between developmental network quality and job competency.

ANOVA

The results of the one-way ANOVA tests for each of the variables are reported in tables 4.2 through 4.9. In this section, the p-value for each variable is reported, along with estimated means, standard deviation, degrees of freedom, and confidence intervals for each category of each variable. Assuming statistical significance of 0.05, all variables of interest were not found to be significant with the exception of years of experience as a healthcare manager and race.

Years of Healthcare Experience

The results of the one-way ANOVA run for years of healthcare experience is shown in table 4.2. The table includes the estimated means, standard deviation, degrees of freedom, and

confidence levels resulting from the test. There was no statistically significant difference between years of experience and job competency ($p=0.5699$) overall.

Table 4.2

One-way ANOVA results for years of healthcare experience

Years in Healthcare	Estimated means	Standard Deviation	Degrees of Freedom	Lower confidence level	Upper confidence level
10 years or more	78.8434	1.3512	105	76.1641	81.5226
5-10 years	75.2500	3.5537	105	68.2037	82.2963
Less than 5 years	76.6154	3.4143	105	69.8455	83.3853

Years of Experience as a Healthcare Manager

The results of the one-way ANOVA run for years of experience as a healthcare manager is shown in Table 4.3. The table includes the estimated means, standard deviation, degrees of freedom, and confidence levels resulting from the test. There was a statistically significant difference between years of manager experience and job competency ($p=.0324$).

Table 4.3

One-way ANOVA results for years of healthcare experience as a manager.

Years in Healthcare	Estimated means	Standard Deviation	Degrees of Freedom	Lower confidence level	Upper confidence level
10 years or more	80.8966	1.5729	105	77.7778	84.0153
5-10 years	73.6250	2.4452	105	68.7767	78.4733
Less than 5 years	76.3077	2.3492	105	71.6496	80.9658

Education Level

The results of the one-way ANOVA run for education level is shown in Table 4.4. The table includes the estimated means, standard deviation, degrees of freedom, and confidence levels resulting from the test. There was no statistically significant difference between education level and job competency ($p=.1164$).

Table 4.4

One-way ANOVA results for education level

Years in Healthcare	Estimated means	Standard Deviation	Degrees of Freedom	Lower confidence level	Upper confidence level
Bachelor's Degree	80.3529	2.9409	105	74.5217	86.1842
Graduate Degree	77.0595	1.3230	105	74.4363	79.6828
Doctorate Degree	86.2857	4.5830	105	74.4363	79.6828

Network Size

The results of the one-way ANOVA run for network size is shown in Table 4.5. The table includes the estimated means, standard deviation, degrees of freedom, and confidence levels resulting from the test. There was no statistically significant difference between network size and job competency ($p=0.5090$).

Table 4.5

One-way ANOVA results for network size

Years in Healthcare	Estimated means	Standard Deviation	Degrees of Freedom	Lower confidence level	Upper confidence level
0-2	80.0667	2.2451	105	75.6150	84.5184
3-5	78.1250	1.7749	105	74.6056	81.6444
6+	76.3667	2.2451	105	71.9150	80.8184

Network Range

The results of the one-way ANOVA run for network range is shown in table 4.6. The table includes the estimated means, standard deviation, degrees of freedom, and confidence levels resulting from the test. There was no statistically significant difference between network range and job competency ($p=0.4434$).

Table 4.6

One-way ANOVA results for network range

Years in Healthcare	Estimated means	Standard Deviation	Degrees of Freedom	Lower confidence level	Upper confidence level
1	77.4219	1.5355	106	74.3777	80.4661
2	79.2727	1.8518	106	75.6013	82.9442

Network Density

The results of the one-way ANOVA run for network range is shown in table 4.7. The table includes the estimated means, standard deviation, degrees of freedom, and confidence levels

resulting from the test. There was no statistically significant difference between network range and job competency ($p=0.4857$).

Table 4.7

One-way ANOVA results for network density

Network Density	Estimated means	Standard Deviation	Degrees of Freedom	Lower confidence level	Upper confidence level
0.31-0.4	76.5556	2.8965	101	70.8097	82.3014
0.41-0.5	82.2308	2.4100	101	77.4499	87.0116
0.51-0.6	78.3333	2.8965	101	72.5875	84.0792
0.61-0.7	74.4286	3.2843	101	67.9134	80.9437
0.71-0.8	77.5882	2.9805	101	71.6758	83.5007
0.81-0.9	79.8750	4.3447	101	71.2562	88.4938
0.91-1.0	73.8571	4.6447	101	64.6433	83.0710

Gender

The results of the one-way ANOVA run for gender is shown in Table 4.8. The table includes the estimated means, standard deviation, degrees of freedom, and confidence levels resulting from the test. There was no statistically significant difference between gender and job competency ($p=0.1006$).

Table 4.8

One-way ANOVA results for gender

Gender	Estimated means	Standard Deviation	Degrees of Freedom	Lower confidence level	Upper confidence level
Female	77.9487	1.3710	105	75.2302	80.6672

Male	77.5000	2.2883	105	72.9626	82.0374
Prefer not to answer	96.5000	8.56	105	79.5228	113.4772

Race

The results of the one-way ANOVA run for race is shown in Table 4.9. The table includes the estimated means, standard deviation, degrees of freedom, and confidence levels resulting from the test. There was no statistically significant difference between race and job competency ($p=0.8057$).

Table 4.9

One-way ANOVA results for race

Race	Estimated means	Standard Deviation	Degrees of Freedom	Lower confidence level	Upper confidence level
Non-white	79.2857	4.6544	106	70.0579	88.5136
White	78.0990	1.2253	106	75.6697	80.5284

Multiple Linear Regression

For each of the network characteristics, a multiple linear regression model was run to model the relationship between having a developmental network and the four characteristics of network range, size, quality and density. Therefore, a total of four models were run. For each model, years of management experience, race and gender were also adjusted with job competency, in addition to the network characteristic. Years of experience as a manager was included in the model because the one-way ANOVA showed some relationship to competency. The one-way ANOVA showed that the variable of race was not significant, however, the two

responses of “prefer not to answer” could have contributed to this. Therefore, when running the linear regression models on each of the network characteristics, the two responses of “prefer not to answer” for gender were removed from the sample so as to not skew the model. Gender and race were both included in the model because prior research has shown that these two protege characteristics have been known to influence several factors related to mentoring for the protege (Davis, Jones, Settles, and Russell, 2022; Banerjee-Batist et al., 2019; Sosik and Godshalk, 2000)

Multivariable linear regression was used to test if years of manager experience, race, gender, and each of the network characteristics was associated with self-reported job competency. The results of the multivariable models showed that there was no relationship between the four network characteristics of network quality, network density, network size, and network range and self-reported job competency. The results of each of the four models are shown in Table 4.10 through Table 4.13.

Model 1: Network Size

Multivariable linear regression was used to test if years of manager experience, race, gender or network size was associated with self-reported job competency. The multivariable model did not find an association with the variables of interest ($p=0.4048$) and the adjusted model was not found to be predictive ($r\text{-square} = 0.0598$). The coefficients and standard error results for the model are shown in table 4.10.

Table 4.10

Results for Multiple Linear Regression Model for Network Size

Variable	Coefficients	Standard Error
(Intercept)	76.6971	5.8326

Three to five years management experience vs. zero to two years experience	-6.0659	3.0926
5-10 years of management experience vs. zero to two years experience	-3.4971	2.8565
Race: White vs. Non-White	4.6055	5.6230
Gender: Male vs. Female	0.2575	2.6854
3-5 Mentors vs. 0-2 Mentors	-2.2607	2.8655
6+ Mentors vs. 0-2 Mentors	-1.1817	3.2199

Model 2: Network Range

Multivariable linear regression was used to test if years of manager experience, race, gender or network range was associated with self-reported job competency. The multivariable model did not find an association with the variables of interest ($p=0.1760$) and the adjusted model was not found to be predictive ($r\text{-square} = 0.0727$). The coefficients and standard error results for the model are shown in Table 4.11.

Table 4.11

Results for Multiple Linear Regression Model for Network Range

Variable	Coefficients	Standard Error
(Intercept)	74.8228	5.7861
Three to five years management experience vs. zero to two	-6.8642	2.9979
5-10 years of management experience vs. zero to two	-4.4368	2.8574
Race: White vs. Non-white	4.7275	5.6143
Gender: Male vs. Female	-0.0093	2.6426

Network range of one vs. two or more 2.8293 2.4023

Model 3: Network Density

Multivariable linear regression was used to test if years of manager experience, race, gender or network density was associated with self-reported job competency. The multivariable model did not find an association with the variables of interest ($p=0.1433$) and the adjusted model was not found to be predictive ($r\text{-square} = 0.1394$). The coefficients and standard error results for the model are shown in Table 4.12.

Table 4.12

Results for Multiple Linear Regression Model for Network Density

Variable	Coefficients	Standard Error
(Intercept)	67.9339	7.2132
Three to five years management experience vs. zero to two	-4.8669	2.9321
5-10 years of management experience vs. zero to two	-2.9793	2.8310
Race: White	7.0365	5.5735
Gender: Male	0.0177	2.6145
Density: 0.31-0.4 vs. 0.91-1	-0.5572	5.3948
Density: 0.41-0.5 vs. 0.91-1	9.6490	4.9927
Density: 0.51-0.6 vs. 0.91-1	5.5551	5.2509
Density: 0.61-0.7 vs. 0.91-1	2.4115	5.4747
Density: 0.71-0.8 vs. 0.91-1	4.4577	5.2241
Density: 0.81-0.9 vs. 0.91-1	6.2511	6.0029

Model 4: Network Quality

Multivariable linear regression was used to test if years of manager experience, race, gender or network density was associated with self-reported job competency. The multivariable model did not find an association with the variables of interest ($p=0.1805$) and the adjusted model was not found to be predictive ($r\text{-square} = 0.0727$). The coefficients and standard error results for the model are shown in Table 4.13.

Table 4.13

Results for Multiple Linear Regression Model for Network Quality

Variable	Coefficients	Standard Error
(Intercept)	57.2080	14.2806
Two to five years management experience vs. zero to two	-6.4690	2.9321
Five to ten years of management experience vs. zero to two	-3.5580	2.8038
Race: White vs. Non-white	4.7107	5.5115
Gender: Male vs. Female	0.5871	2.6077
Network Quality	0.4938	0.3476

Discussion of Results

For this study, the statistical analyses conducted using the results of the survey showed that there was no significant relationship between the four developmental network characteristics and job competencies for healthcare managers. The developmental network characteristics that were included in the linear regression model were network size, network density, network range and network quality. This is somewhat surprising given the findings of a

prior study that showed that having multiple mentors led to an increase in the development of competencies for healthcare managers. Other control variables included in the multiple linear regression models were years of healthcare manager experience, race, and gender. Although the results showed no relationship between these independent variables and the dependent variable of self-reported job competency, the results of the survey provided data on the characteristics of developmental networks for healthcare managers in terms of their size, quality, range and density. These findings will be discussed in this section as they relate to the literature review and what they tell us about the developmental networks of the healthcare managers who participated in this study.

Network Size

Overall, the size of the healthcare manager's networks was large relative to other studies of developmental networks that have been conducted in other professional contexts (Dobrow Riza & Higgins, 2019; Dobrow & Higgins, 2005; Murphy & Kram, 2010). These included working professionals across a variety of business professions recruited through an MBA program (Dobrow & Higgins, 2005; Murphy & Kram, 2010) and attorneys (Dobrow Riza & Higgins, 2019). In this study, 44.44% of participants reported that they have three to five mentors and 27.77% reported that they have more than six. In prior studies, the number of mentors reported on average has been around five (Poldony & Baron, 1997; Dobrow & Higgins, 2005). In comparison to other workplace contexts studied, this suggests that healthcare manager's developmental networks tend to be larger than others. A reason for this may be due to the complexity of the healthcare environment in the United States. As discussed in chapter two, the complexity of the healthcare environment is high for many reasons, including regulations, accelerated technological change, healthcare reform, resource constraints, increased

competition and external and internal pressures (Agwunobi & Osborne, 2016; Begun et al., 2011; Huppertz et al., 2014; Payne and Leiter, 2013; Stefl, 2008). Given this, healthcare managers may seek developmental assistance from multiple developmental relationships as a strategy for managing these complexities. In this way, healthcare managers may have larger developmental networks for themselves to develop a diverse portfolio of mentors with a breadth of knowledge and skill sets (De Janasz, Sullivan, & Whiting, 2005) to manage complexity in their work.

Scholars have suggested that obtaining developmental assistance from a mentor or developer can be used to develop competencies in areas where healthcare managers need to be effective to improve organizational performance (Edwards et al., 2015; Finney, MacDougall, & O'Neill, 2012; Hartman & Crow, 2002; Koberg, Boss, & Goodman, 1998) and obtain competitive advantage (Olson, Prybil, & Hilber, 2004). Given this, the healthcare managers in this study could be growing their networks in an effort to advance and remain competitive within their profession and organization where the study took place. The results did not show a relationship to competency development and the developmental network characteristics studied. However, healthcare managers may be attempting to achieve other outcomes through having a developmental network.

Although the survey did not ask participants about the benefits of their developmental relationships, healthcare managers could be cultivating and engaging with their network to achieve outcomes beyond competency development. Given that the individual is primarily responsible for forming and shaping their developmental network over time (Kram, 2010), the healthcare managers that participated could be cultivating their developmental networks to achieve other outcomes as an investment in their career (Srivastava, 2015). For example, having

a developmental network and specific characteristics of the network have been shown to influence several outcomes, including intrinsic career success (van Emmerick, 2004), career satisfaction (Higgins, 2000; Murphy & Kram, 2010), career optimism (Higgins, Dobrow, & Roloff, 2010), organizational retention and promotion (Higgins & Thomas, 2001), and salary level (Murphy & Kram, 2010). Other outcomes were not explored in this study but further research could seek to find out more information about why healthcare managers are forming their developmental networks. This may yield additional information about why healthcare managers are developing and maintaining their developmental networks to identify alternative outcomes for future study in association with developmental networks.

Network Density

The results of this study showed no significant relationship between developmental network density and job competency development. There is a lack of research specifically studying developmental networks and job competency development in any professional context to compare the results of this study to. However, the findings are somewhat surprising given the existing literature on developmental network density and its relationship to other salient outcomes, such as career satisfaction (Li, Gong, & Liao, 2022) and professional identity (Dobrow & Higgins, 2005). These studies have shown that network density has some influence on outcomes for the individual. In one study, network density negatively mediated the relationship between the strength of the developmental relationship and career satisfaction (Li, Gong, & Liao, 2022). Another study showed that as density increased over time, the clarity of the individual's professional identity decreased (Dobrow & Higgins, 2005). The studies that found a relationship between density and salient outcomes were longitudinal and examined how density and the salient outcome changed over time. In contrast, this study examined density at a

single point in time. Therefore, density may be associated with job competency development over time, rather than at a single point in time. In other words, density and outcomes may change together over time. Further study would be needed to examine the developmental networks of healthcare managers in relationship to density to determine this.

Although the findings did not show an association between network density and job competency, the data provide needed information about the density of healthcare manager's developmental networks. The network density for the participants ranged from 0.33 to 1.0, with no participants having a density below 0.33. The majority of the participants had a moderately dense network, with 86.12% of participants having a density between 0.33 to 0.8. The literature suggests that networks with lower to moderate density give individuals access to less non-redundant information, whereas networks with higher density provide more redundant information (Dobrow & Higgins, 2005). The developmental network density of healthcare managers is moderate overall. Therefore, healthcare managers may be receiving information from their networks that is both redundant and less redundant. Additional research would be needed to explore this further, however, it would be valuable to find out why healthcare managers have moderately dense networks. Given the complexity of the healthcare environment, it may be important for healthcare managers to obtain access to new and redundant information to be effective in their roles. The access to redundant information may enable them to validate prior information with other sources.

Network Range

The findings of this study did not reveal a relationship between network range and job competency development, however, the range of the healthcare manager's networks overall tended to be low. This is consistent with other studies that did not find a relationship between

the range of the individual's developmental network and short-term outcomes, such as intrinsic career success (van Emmerick, 2004) and long-term outcomes, such as organizational retention and career advancement (Higgins & Thomas, 2001). Of those who responded to the survey, 59.26% knew their developers from only one social arena. In contrast, 40.74% knew their developers from 2 or more social arenas. Though it is not an overwhelming majority, the low range of healthcare manager's developmental networks should be explored further. Given the complexity of the healthcare environment, it isn't surprising that healthcare managers would cultivate their networks and form relationships with those within their work environment or industry instead of having developers from many social arenas.

A limitation of this study is that the survey did not ask participants if their "work relationships" were internal or external to the organization. To examine this further, future studies should gather data on the reasons why healthcare managers have low to high range networks. It would be helpful for practitioners to know what value having a low range network provides for healthcare managers compared to a higher range network. This would enable healthcare leaders and professional development practitioners to provide support for individuals to cultivate their networks in ways that benefit competency development or other desired outcomes related to job performance for healthcare managers.

Network Quality

Similar to the other developmental network characteristics, there was no relationship found between network quality and job competency. This finding is contradictory to the limited literature available that examines the relationship between having multiple mentors and job competency development specifically for healthcare managers (Finney et al., 2012). In the only study of its kind, Finney, MacDougall & O'Neill (2012) piloted a mentoring program that

paired healthcare managers with multiple mentors to examine the change in their job competencies as well as other outcomes. The results of their study showed that receipt of mentoring support resulted in an increase in leadership and managerial competencies for the managers that participated (Finney, MacDougall & O'Neill, 2012). In addition to providing mentoring support to the healthcare managers (proteges), the developers and the managers participated in mini-projects. In comparing that pilot to this study of healthcare managers, the addition of project work alongside receipt of mentoring suggests that mentoring alone may not be enough to increase job competency for healthcare managers. In fact, project experience completed together with their mentors may moderate job competency development for healthcare managers. This may explain why the results of this study did not show a relationship between job competency development and the receipt of developmental assistance (mentoring). This warrants further study to examine what factors, including hands-on experience, moderates the relationship between the receipt of mentoring assistance (mentoring quality) and job competency development.

Even though the results of the study showed no relationship between mentoring quality and job competency development, the data showed that network quality overall for the healthcare managers that participated was high, with a response mean of 36.48 and a standard deviation of 3.824. With a possible range of 9-45, this means that most healthcare managers reported a high overall network quality, with the mean of 36.48 being very close to the high end of the range. Although network quality was not associated with job competency development, the healthcare managers who responded to the survey appear to be receiving high amounts of developmental support. This warrants further investigation to understand what benefits

healthcare managers perceive there to be from the developmental assistance being provided, if not increased job competency development.

Discussion of How the Results Inform the Research

Although the results of this study did not show a relationship between the developmental network characteristics of healthcare managers and the development of job competencies, the findings suggest that developmental networks have some significance for healthcare managers. Specifically, the size of the healthcare manager's networks in comparison to studies of developmental networks in other professional contexts suggests they have some significance. Additionally, the high amount of developmental support that healthcare managers report receiving is significant across the survey sample. Murphy and Kram (2010) referred to development networks as being egocentric because the network is developed and shaped by the individual. Chandler and Kram (2005) extend this further, saying that the individual's developmental network consists of the relationships that are developmentally important to them, as they perceive it. Even though a relationship was not found between job competency development and the four network characteristics, there could be other reasons why healthcare managers are cultivating their networks and why they are larger compared to other professional contexts. This warrants further study to gather information from healthcare managers on their motivations for developing networks, what benefits they perceive them to offer, and why they consider them worth investing time in to develop. This is further discussed in chapter five, along with other avenues for future research.

Summary

The results of the data analysis did not show a significant relationship between job competencies for healthcare managers and the developmental network characteristics of

network size, density, range, and quality. Although significant relationships were not found between the main variables of interest in this study, the data that were gathered on the developmental networks of healthcare managers adds to the existing literature on the topic. The data gathered on the developmental networks of healthcare managers provides evidence that networks have some significance, though not necessarily in association with job competencies. This is discussed further in chapter five, along with the implications and limitations of this study, recommendations for future research, and plans for sharing out the results of this study.

CHAPTER FIVE: RECOMMENDATIONS

Introduction

The purpose of this quantitative study was to better understand the relationship between having a developmental network and the development of self-reported job competencies for healthcare managers. The research question asked, what is the relationship between developmental network size, density, range, and quality and the development of job competencies for healthcare managers? The results of the statistical analysis conducted did not find an association between any of the developmental network characteristics that were examined, including network density, range, quality, and size. However, the results showed a modest negative relationship between the years of experience as a healthcare manager and job competency, such that as years of experience increased, competency went down in varying amounts between each of the four models run.

The review of the literature in chapter two provided empirical evidence to illustrate the importance of conducting this study to understand if having a developmental network is associated with job competency development for healthcare managers. The purpose of conducting this study was to evaluate whether having a developmental network is an effective tool for developing job competency for healthcare managers.

Today's healthcare environment is undergoing rapid change with an increased focus on improving the quality of healthcare and health outcomes for patients (Braithwaite, Glasziou, & Westbrook, 2020). Healthcare today is highly complex due to regulations, payer reimbursement models, accelerated technological change and pressure from external groups (Agwunobi & Osborne, 2016; Begun, White, & Mosser, 2011; Huppertz, Strosberg, Burns, & Chaudhri, 2014; Payne & Leiter, 2013; Stefl, 2008). There is mounting evidence that substantiates a relationship

between healthcare leadership and management competency with organizational performance and healthcare outcomes (Crowe et al., 2017; Guo, 2003; Hernandez, O'Connor, & Meese, 2018; Shipton et al., 2008; Vainieri, Ferre, Giacomelli, & Nuti, 2019). Given this, one can assume that the healthcare manager plays a pivotal role in the success and sustainability of today's healthcare organization, serving a variety of functions, including decision making, diffusion of innovation, strategy execution, and managing frontline staff (Birken et al., 2012; Awowale, 2017; Payne & Leiter, 2013, Vizzuzo, 2015). Therefore, is it imperative that healthcare managers be equipped with the developmental tools to enable them to be successful in their roles, such as having developmental relationships and cultivating a developmental network.

Although the results of this study did not find a significant relationship between job competency development for healthcare managers and the characteristics of their developmental networks, the findings added new information to the literature on the developmental networks of healthcare managers. The data showed that a majority of healthcare managers surveyed reported having at least three mentors. Additionally, the data provided insights into the range, density and quality of their developmental networks. In this chapter, the findings are discussed and connections are made with the literature review, along with the researcher's reflections, implications, limitations, recommendations for future research and plans for communicating the results.

Summary of Results

The findings of this study provided insight and data on the developmental networks and job competency of healthcare managers working in a large academic medical center. Although an association was not found between job competency development and any of the

developmental network characteristics studied, data on the density, range, quality, and size of the network provide needed information on the developmental networks of healthcare managers today. This information adds to the scarce existing literature on the developmental networks of healthcare managers in relation to job competency, as well as the dearth of information on the characteristics of their developmental networks.

Although there is a paucity of research on this specific topic to compare to, the findings of this study do not align with the single known study on the topic. Additionally, the findings of this study are somewhat surprising given the review of the literature that suggests that developmental relationships influence job outcomes across a variety of professional contexts (Murphy and Kram, 2010; Higgins, Dobrow, & Roloff, 2010). There is only one known study that examines the relationship between having multiple developmental relationships at a time and the development of job competencies for healthcare managers in their professional context. The study took place in a Canadian government health facility and showed that having multiple mentors led to the development of job competencies for healthcare managers over a six month period (Finney et al., 2012). Therefore, the findings of this study showing no association between having a developmental network and the development of job competencies for healthcare managers does not align with the results found in the existing literature.

As discussed in chapter two, the study by Finney et al. (2012) examined job competency for healthcare managers over a six month time period rather than at a single point in time as compared to this study. They found only a modest increase in job competency over time. Thus, it is possible that the study design explicates the different findings between the two studies. This is supported by Dobrow et al. (2019), Dobrow and Roloff (2010) and Higgins and Thomas (2001) who have called for developmental networks to be examined longitudinally to

understand how job and other outcomes change over time and in relation to the developmental network characteristics examined in this study.

Additionally, it is possible that other variables moderate or amplify the relationship between the developmental networks of healthcare managers and the development of job competencies. In their study, Finney et al. (2012) measured the change in job competency prior to assigning multiple developers (mentors) to healthcare managers at a healthcare organization in Canada. The healthcare managers and the developers (mentors) were assigned project work that enabled them to work together in addition to providing developmental support. Therefore, project work completed collaboratively between proteges (healthcare managers) and developers (mentors) may moderate the development of self-reported job competencies. Unfortunately, time spent on project work was not measured as a variable in Finney, MacDougall, and O'Neill's study. Moreover, there may be other variables related to competency development that moderate the relationship between having a developmental network, receiving developmental support, and the development of self-reported job competencies.

Although a relationship was not found between the independent variables of network size, quality, range, and density and the dependent variable of job competency, the data suggest the developmental networks of healthcare managers are larger in size, have moderate density, low range, and high quality overall. In and of itself, this is a significant finding. At the time this study was conducted, there was no existing data available on the developmental network characteristics of healthcare managers. Therefore, this study provides a meaningful glimpse into the developmental networks of healthcare managers, including their size, range, density, and quality. Future studies on this topic will now have a data set to study for comparison.

Reflection on Findings

“It is a good morning exercise for a research scientist to discard a pet hypothesis every day before breakfast. It keeps him young.”

- Konrad Lorenz

“Creativity requires input, and that’s what research is. You’re gathering material with which to build”

-Gene Luen Yang

Given my own positive experience and observations of others’ success in cultivating a developmental network and subsequent positive job competency and job outcomes success, the results of this study were surprising to me. My own experience working in healthcare and current position as a healthcare manager motivated me to conduct this study. During the last twenty years of working in healthcare, I was committed to cultivating and fostering my own developmental network, realizing the advantages of doing so early on in my career. Having a diverse portfolio of developers increased the overall support I received and enabled me to benefit from the different types of experience, advice, and support that I received. As my needs changed over time, I was able to identify gaps in my support network and make adjustments to ensure that my developmental needs were met. This enabled me to develop job competencies in the various roles I held, led to developmental and promotional opportunities and led me to my current position as a healthcare manager. Additionally, I observed that my peers had taken similar approaches to cultivating their own developmental networks that led to career opportunities and successful job performance. In addition to contradicting my own experience, the results were especially surprising considering the results of the study by Finney, MacDougall, and McNeill (2012) as well other studies conducted on developmental networks in

different professional contexts that found associations between some developmental network characteristics and job outcomes (Dobrow et al., 2019; Dobrow & Higgins, 2005; Higgins, Thomas, & Dobrow, 2010; Higgins, Dobrow, & Roloff, 2010; Higgins & Thomas, 2001).

Although the results did not align with my own lived experience and that of my peers, conducting the study added to the literature in a number of ways and resulted in many lessons learned. First and foremost, the results provided needed data on the developmental networks and self-reported job competency of a group of healthcare managers working in healthcare today. Additionally, this study shed light on the factors limiting further exploration of this topic, namely, access to a population of healthcare managers that is significant in number and representation of the general population, so that the results of future studies can be generalizable. Additionally, given that there was limited research on the study of developmental networks and job competency development for healthcare managers, gathering qualitative data from the healthcare managers in addition to the quantitative data may have aided in the interpretation of the results.

Future studies on this topic may benefit from a design that incorporates mixed methods, such as interviews with healthcare managers, their developers, and their supervisors. This could aid in the interpretation of the developmental network characteristics gathered through surveys and point to new insights and factors related to job competency development. It would be helpful to better understand healthcare manager's experiences with their developmental networks and job competency development. This includes gathering information about the formation of their networks, their experiences receiving developmental support, and how that did or did not lead to job competency development from their perspective. Additionally, it would aid practitioners to better understand what types of challenges and opportunities

healthcare managers experience in forming and cultivating their networks, enabling them to develop and implement developmental tools and resources to assist them. Finally, gathering qualitative data on the job competency of healthcare managers from their supervisors or developers would provide validation of their job competency, rather than relying on self-assessment of their competency.

Implications

Although this study did not find an association with having a developmental network and job competency development for healthcare managers, the information learned about the developmental networks of healthcare managers has important implications for practitioners and leaders within healthcare organizations today. The findings of this study provide human resource practitioners and healthcare leaders with a benchmark on the developmental networks of healthcare managers and their characteristics. No studies have been found on the developmental networks of healthcare managers that provides data for practitioners in the field in which to benchmark the developmental network characteristics of healthcare managers working in their organizations against. Although the study did explain why or how healthcare managers networks tend to be large, have moderate density, low range, and high quality, the literature review and discussion suggests several steps practitioners might take to benefit from this information.

As a practical next step, human resource development practitioners would benefit from surveying their healthcare managers to benchmark and measure their developmental network characteristics. As recommended, they would benefit from gathering information from the healthcare manager's perspectives about their experiences with developing and cultivating their networks and how it has influenced their job competency development. Having both qualitative

and quantitative data may provide the additional information needed to interpret the qualitative data on the healthcare manager's networks. This study provides a benchmark that shows that healthcare managers tend to have large networks that are moderately dense, low range, and high quality. However, the practitioner may benefit from gathering qualitative data to determine whether this benchmark has a positive influence on job competency development for healthcare managers and why. For instance, it could be possible that having a low range network is not helpful for managers in developing their job competency. Gathering qualitative data may explicate the benchmarks and give practitioners an indication of which direction to aim for, enabling them to allocate appropriate resources and support to healthcare managers. Given the significance of the healthcare manager role to the success of healthcare organizations, it is important that practitioners support healthcare manager's success in their roles.

This study has provided a standard survey tool and recommendations for additional data collection methods that can be used by healthcare managers to gather data on the developmental network characteristics of healthcare managers. The survey utilized to gather data on developmental network characteristics and job competencies can be used in any setting. There is opportunity for them to gather additional information from healthcare managers that is qualitative, such as through interviews and surveys. The data could be coded to identify key themes and additional factors that may be influencing the development and cultivation of developmental networks and job competency for healthcare managers.

Using this data, practitioners and healthcare leaders could advocate and allocate resources to support healthcare managers in cultivating their networks. There are several ways that practitioners could provide support to healthcare managers in cultivating their developmental networks. First, they could offer support to conduct regular needs assessments

that incorporate self-awareness and personal goal setting (Shen, Cotton, & Kram, 2015; Kram & Higgins, 2007), in addition to 360 feedback assessment from organizational leaders, supervisors, and peers (Garman et al., 2004). This would enable healthcare managers to evaluate their developmental networks in comparison to their current needs. As a result, if any gaps are identified, practitioners could provide assistance in finding appropriate mentors to fill those gaps. Some studies have shown that females and minorities may face more challenges in finding a mentor and organizations should be mindful to provide additional support as needed for those groups (Davis, Jones, Settles, & Russell, 2022; Banerjee-Batist, Reio, & Rocco, 2019; Sosik & Godshalk, 2000). Finally, practitioners should provide ongoing support for healthcare managers as they move through the phases of their developmental relationships. Each phase of mentoring (initiation, cultivation, separation, and redefinition) are dynamically different and healthcare managers may require support to navigate these changing relationships and develop strong relationships with their mentors (Kram, 1985). Types of support that could be considered include training, education materials, and coaching support from more experienced leaders who have experience developing and navigating mentoring relationships.

Limitations

The findings of this study should be considered subject to its relevant limitations. The major limitation of this study stems from the sampling methods utilized. This was a cross-sectional study that sought to establish a relationship between the characteristics of a healthcare manager's developmental networks and the manager's job competencies. Ideally, the sample population would have been representative of the healthcare manager population in the United States to the extent that the results would be considered generalizable. However, as stated in chapter three, the researcher had no access to a large population of healthcare

managers. Several professional organizations have national, regional, or state chapters, such as the American College of Healthcare Executives, comprised of members working as healthcare management professionals. However, the researcher was unable to obtain access to these groups. Through professional contacts, the researcher was able to access a population of healthcare managers working in a large multi-site, multi-region academic medical center, but future studies should look at a larger cross-section of healthcare managers.

Additionally, a further limitation of this study was that the population of healthcare managers within the medical center could not be stratified by demographic variables other than race and gender to ensure it was representative of the characteristics of the group as a whole. According to Cresswell (2016), stratification involves defining specific characteristics within the sample population and ensuring that those selected to participate are proportionately represented relative to the characteristics of the entire population (p.150). Unfortunately, this was not possible because there were not enough participants across the categories. The categories of race and gender were examined but no significant differences were found.

Given the aforementioned limitations, the sample population was invited to participate on a volunteer basis, leaving potential for there to be response bias amongst those that did respond. In research, the possibility of response bias is often evaluated to assess whether the responses of those that participated have potential to be different from the responses of those that did not choose to participate (Cresswell, 2016, p.157). Strategies exist to evaluate response bias, such as conducting wave analysis to evaluate whether results are changing over time as new responses are submitted (Cresswell, 2016, p.157). Additionally, a second strategy would be to contact a few of the non-respondents and request they complete the survey to evaluate how much their responses vary from those already collected. However, the breadth and variability of

data collected for this study made it difficult to compare responses between participants without using statistical methods. For this reason, no additional steps were taken to evaluate response bias for this study. Therefore, it must be acknowledged that there could be response bias within the results.

In addition to limitations from sampling design and procedure, the study focused solely on the developmental network characteristics of healthcare managers and their job competencies from their perspective. Therefore, the results of this study cannot be used to establish what is actually occurring in regards to the developmental networks and job competencies of healthcare managers, only their perceptions of what is occurring. Within the literature, scholars have emphasized the importance of examining mentoring from the perspectives of the protege and the developer (Dobrow et al., 2012). Additionally, within practice, job competency is typically measured through self-assessment and by obtaining 360 feedback from others who are in a position to assess individuals competencies (Garman et al., 2004). This includes supervisors and peers within the workplace. The study design did not include gathering data from developers to validate the independent variables of network size, density, range, and mentoring quality. Nor did it include validating healthcare manager job competency by gathering assessments from a variety of sources, such as the healthcare manager's supervisor, colleagues, and peers. Doing so would have strengthened the study and should be considered when conducting studies of healthcare manager networks or competencies in the future.

An additional limitation of this study was that it constrained examination of the developmental network characteristics and job competencies of healthcare managers to a single point in time and excluded other variables that have been studied in relationship to the dependent and independent variables that were included. This study sought to establish a

relationship between the variables of developmental network characteristics and job competencies, not to understand how that relationship changes over time and relative to interventions. However, several researchers have established that developmental networks do change over time by conducting longitudinal cross-sectional studies of professionals in a variety of professional contexts (Dobrow Riza & Higgins, 2019; Higgins, Dobrow, & Roloff, 2010; Dobrow & Higgins, 2005). Narrowing the research question limited the opportunity to establish a more thorough understanding of the developmental network characteristics of healthcare managers and how they change over time, greatly expanding the empirical research on the topic. Additionally, gathering data on how healthcare manager's networks change over time may have yielded additional explanations for the results found.

Finally, the design of the survey did not include qualitative data—exclusion of qualitative data obtained through a mixed-methods study design was a missed opportunity to gain additional insights and background in relation to the quantitative results found. There is opportunity to gather qualitative information from healthcare managers to generate new insights and avenues for further examination in future studies. This could include asking the managers to explain their experiences, level of engagement, and perceptions from forming and engaging in relationships with their developers.

Recommendations for Future Research

Although the findings of this study did not show an association between having a developmental network and the development of job competencies for healthcare managers, further examination of the primary and secondary research question are warranted. Given the limitations discussed previously, particularly the limited sample size and generalizability of the sample, it would be worthwhile to repeat this study with modifications to the study design and

sampling strategy. Additionally, a qualitative study would be helpful to uncover the underlying reasons why healthcare managers have formed the specific type of developmental networks that were represented in this study—namely those that are large in size, moderately dense, low in range, and high in quality from their perspectives. This would inform and shape the design of additional studies on the development of job competency for healthcare managers and whether developmental mentoring and having a developmental network fosters competency development. Finally, any future study of developmental networks and job outcomes for healthcare managers, such as competency, should incorporate a longitudinal design into their study.

As stated previously, this study was subject to many limitations. Future studies should prioritize access to a population of healthcare managers that is more representative of the greater population of healthcare managers working in the United States so that the results could be generalized to the general population of healthcare managers. The challenge facing future researchers will be obtaining access to a population of healthcare managers that would be representative of healthcare managers working in the United States today. Although attempts were made for this study to form strategic partnerships with professional associations comprised of healthcare managers, they were not successful due to association rules protecting members from research inquiries. However, given the importance of the research, there may be individuals within the professional associations who would be willing to partner with researchers. It is possible that some type of joint partnership with those internal to the associations may fare better to overcome the challenges experienced in this study.

Qualitative study is also needed to uncover the underlying reasons why healthcare managers reported having developmental networks that are large in size, moderately dense, low

in range, and high in quality, from their perspectives. As discussed in chapter four, healthcare managers clearly have taken the time to form their own developmental networks. Given this, additional information is needed to understand what motivates healthcare managers to do this. The results of this study did not find that job competency was associated with the developmental network characteristics density, range, quality, and size, however, there may be other reasons why healthcare managers are forming and maintaining developmental networks. Conducting a qualitative or mixed-methods study would generate new information about why healthcare managers are forming their developmental networks, including their perceptions of the benefits of having a developmental network and their experiences developing and maintaining their networks over time. Additionally, it would be beneficial to understand the underlying reasons behind this new benchmark for the developmental network characteristics of healthcare managers today. Additional data, including qualitative data, could tell us whether this benchmark is positive or negative for healthcare managers and what direction should be pursued. For example, is it better to have a high network range, or low range? Knowing this would enable practitioners to identify the resources appropriate to support managers in moving in the appropriate direction.

The information gathered could be categorized or organized into themes to understand broader patterns within healthcare manager's experiences developing their networks (Cresswell, 2018, p.63). The results of such a study could be used to inform future studies and the direction of research into the developmental networks of healthcare managers and the relationship to job competency and any other relevant outcomes. With this information, additional outcomes could be studied, along with job competency to understand the full impact of having a developmental network for healthcare managers.

Lastly, any future studies should examine the developmental networks of healthcare managers and job outcomes over time to better understand how they change together. Recent research on developmental networks in other professional contexts have examined networks longitudinally, over longer periods and in relation to other job outcomes (Dobrow et al., 2019, Dobrow & Higgins, 2005; Higgins, Thomas, & Dobrow, 2010; Higgins, Dobrow, & Roloff, 2010, Higgins & Thomas, 2001). This provides researchers with a more comprehensive understanding of the developmental network characteristics studied but provides additional understanding of how these variables change together over time. The study of developmental networks of healthcare managers and job outcomes, such as competency, would benefit from this type of study. It is possible that there may be an association with job competency and developmental networks for healthcare managers that was not found here because this study examined both at a single point in time rather than longitudinally.

Communicating the Results

"It is a great thing to make scientific discoveries of rare value, but it is even greater to be willing to share these discoveries and to encourage other workers in the same field of scientific research."

-Dr. William J. Mayo (1934)

As a next step following the completion of this study, I plan to share the findings with other researchers and practitioners working in healthcare management and administration. This includes sharing the results, findings, and implications of this study with its executive sponsor. Additionally, there are several employee-led resource groups and practitioners within the academic medical center in which this study took place that may benefit from knowing the results and findings of this study and its implications on their work to foster and promote

leadership development within the institution. In the interest of facilitating information sharing amongst these groups and other stakeholders within the institution, a presentation slide deck will be created that summarizes the findings from this study. The information within the presentation will be organized and structured to facilitate use by practitioners within the organization that can be easily understood and shared amongst those who may benefit. By doing this, I aim to facilitate information sharing and dissemination of the study findings and its implications amongst stakeholders within the academic medical center. This includes leaders, managers, human resource professionals and other practitioners involved in fostering leadership development through cultivating one's developmental network and job competency.

Additionally, I may partner with one or more co-authors to develop a manuscript for publication in a healthcare management or healthcare leadership journal. This would expand the dissemination and reach of the study findings beyond that of the academic medical center in which the study took place to reach more practitioners in the field. In doing so, others may be inspired or motivated to build on this study to further advance the examination of the relationship between developmental networks and job competency development for healthcare managers. Other scholars may also benefit from leveraging the study design to examine a similar research question with a more robust and representative sample of healthcare managers to obtain results that are generalizable.

Finally, there is opportunity to advance the study of developmental networks for healthcare managers and the relationship to job competency development by conducting a longitudinal study. The literature review of developmental networks, job competency development and existing leadership programs for healthcare managers yielded only one article on the intersection of these three topics (Finney et al., 2012). Therefore, there is ample

opportunity for further study that includes longitudinal data to examine how developmental networks for healthcare managers change over time and with intervention. The study of network change over time has been called for by researchers who study developmental networks and their relationships to career trajectories and various subjective and objective career outcomes (Dobrow Riza & Higgins, 2019; Higgins, Dobrow, & Roloff, 2010; Dobrow & Higgins, 2005; Van Emmerick, 2004; Higgins & Thomas, 2000). Additionally, there is opportunity to examine network intervention by individuals and organizations that contribute to network change and subsequent outcomes (Dobrow Riza & Higgins, 2019). In the future, the results of further study could be used by individuals and practitioners to intervene in positive ways to cultivate the network characteristics that lead to beneficial career outcomes, such as job competency development.

Conclusion

This study sought to determine whether a relationship exists between having a developmental network and the development of job competencies for healthcare managers. Although the findings of this study did not support a relationship between job competency and the four network characteristics of size, density, range and quality, they did provide some insights into the developmental networks of healthcare managers. Namely, healthcare managers report having larger than average developmental networks and receive a high amount of mentoring support across the various mentoring functions, including psychosocial and career related support as compared to prior studies (Murphy and Kram, 2010; Higgins, Dobrow, & Roloff, 2010). The lack of access to a more robust and representative sample of healthcare managers was the primary limitation of this study. The strength of the study was its survey design which utilized question sets that had been previously validated and utilized in other

studies on developmental networks. Further examination of the developmental networks of healthcare managers is called for, given the complexity of the healthcare environment and the importance of healthcare managers to the sustainability of healthcare organizations. This study showed that healthcare managers are cultivating their own networks and it may be beneficial for human resource practitioners and healthcare leaders to understand the ways in which having a developmental network is serving to benefit the healthcare managers and their organizations. This includes examining the developmental networks of healthcare managers over time (longitudinally) and in association with a variety of outcomes, and interventions. Knowing this will enable healthcare organizations to foster and support the developmental programs, education, resources, and tools that best support healthcare managers, a role that is vital to organizational performance and sustainability.

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Appendix A

Participant Survey**Screening Question**

Within healthcare organizations, the healthcare manager is positioned within the organizational hierarchy between senior leadership and other staff, such as clinicians and allied health staff who have direct interaction with patients. They perform a range of management functions including responsibility and decision making in the areas of leadership, communications, budget management, strategic planning, quality improvements, resource allocation, staffing, employee engagement and acquisition of technology.

Based on the above description, would you say that you are currently working as a healthcare manager?

- a. Yes (continue on to next question)
- b. No (end survey, display “Based on your answer, you do not meet the criteria for this study. Thank you for your time and volunteering to participate in this study.”)
- c. Unsure (continue on to next question)

Section 1

- 1) What is your job title?
- 2) How many years have you been working as a healthcare manager?
 - a) Less than one year
 - b) 1-2 years
 - c) 2-3 years
 - d) 3-5 years
 - e) 5 years or more
- 3) How many years have you been working in healthcare?
 - a) Less than one year
 - b) 1-2 years
 - c) 2-3 years
 - d) 3-5 years
 - e) 5 years or more
- 4) What is the highest level of education you have achieved?
 - a) No college degree
 - b) Some college
 - c) Associates degree
 - d) Bachelor’s degree
 - e) Graduate degree
 - f) Doctorate degree

Section 2

Within the past year, please consider the people who you believe currently take an active interest in and concerted action to advance your career. This may be people that you have worked with or work with currently, friends, or family members. These individuals may assist you with personal as well as professional development. For the remainder of this survey, these individuals will be referred to as mentors.

5) How many people is this?

Instructions

Now, you will be asked to answer questions about each of your mentors (up to 5).

If you have more than five mentors, please choose the five that you believe have taken the greatest active interest in and concerted action to advance your career.

You will be asked to list the names of your mentors to help you answer the questions about those mentors throughout the survey.

For our purposes, the names themselves are not important. So, we don't need full names of the people you know. We simply ask that you provide names you will recognize for the 5 people.

For example, instead of entering your mother's full name, you could just enter "mother" or "mom." Instead of entering your friend, John Doe's full name, you could enter "John D".

If you know more than one John D., you are welcome to figure out another naming system that would work for you. For example, "John D. 1" and "John D. 2" would work, just so long as you know who is who.

After listing the 5 people, we will ask you questions about each person. Next, we will ask you about the connections between each of those 5 people.

This portion of the survey will likely take about 10-15 minutes.

Please list up to 5 mentors.

As a reminder, we do not need full names of the people you know. We simply ask that you provide names *you* will recognize for the 5 people.

If you prefer not to use someone's real name, enter any name for them that you would recognize later.

Mentor 1

- 6) What is the primary social arena that you know [mentor 1] from?
- Work
 - Family
 - School
 - Community
 - Professional organization
 - Other
- 7) For [mentor 1], please indicate to what extent you agree or disagree with the below statements on the following scale. Please make only one selection per statement.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
.My mentor takes a personal interest in my career					
.My mentor helps me coordinate professional goals					
.My mentor has devoted special time and consideration to my career					
.I share personal problems with my mentor					
.I exchange confidences with my mentor					
.I consider my mentor to be a friend					
I try to model my behavior after my mentor					

I admire my mentor's ability to motivate others					
I respect my mentor's ability to teach others					

9. What is the gender of [mentor 1]?

- a. Female
- b. Male
- c. Non-binary

10. What is the race of [mentor 1]?

- a. Alaskan Native
- b. American Indian
- c. Asian
- d. Black or African-American
- e. Hawaiian or other Pacific Islander
- f. White
- g. Other

Mentor 2

11. What is the primary social arena that you know [mentor 2] from?

- a. Work
- b. Family
- c. School
- d. Community
- e. Professional organization
- f. Other

12. For [mentor 2], please indicate to what extent you agree or disagree with the below statements on the following scale. Please make only one selection per statement.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
My mentor takes a personal interest in my career					
My mentor helps me coordinate professional goals					

My mentor has devoted special time and consideration to my career					
I share personal problems with my mentor					
I exchange confidences with my mentor					
I consider my mentor to be a friend					
I try to model my behavior after my mentor					
I admire my mentor's ability to motivate others					
I respect my mentor's ability to teach others					

13. What is the gender of [mentor 2]?

- a. Female
- b. Male
- c. Non-binary

14. What is the race of [mentor 2]

- a. Alaskan Native
- b. American Indian
- c. Asian
- d. Black or African-American
- e. Hawaiian or other Pacific Islander
- f. White
- g. Other

Mentor 3

15. What is the primary social arena that you know [mentor 3] from?

- a. Work
- b. Family
- c. School
- d. Community
- e. Professional organization
- f. Other

16. For [mentor 3], please indicate to what extent you agree or disagree with the below statements on the following scale. Please make only one selection per statement.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
My mentor takes a personal interest in my career					
My mentor helps me coordinate professional goals					
My mentor has devoted special time and consideration to my career					
I share personal problems with my mentor					
I exchange confidences with my mentor					
I consider my mentor to be a friend					
I try to model my behavior after my mentor					
I admire my mentor's ability to motivate others					

I respect my mentor's ability to teach others					
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17. What is the gender of [mentor 3]?

- a. Female
- b. Male
- c. Non-binary

18. What is the race of [mentor 3]

- a. Alaskan Native
- b. American Indian
- c. Asian
- d. Black or African-American
- e. Hawaiian or other Pacific Islander
- f. White
- g. Other

Mentor 4

19. What is the primary social arena that you know [mentor 4] from?

- a. Work
- b. Family
- c. School
- d. Community
- e. Professional organization
- f. Other

20. For [mentor 4], please indicate to what extent you agree or disagree with the below statements on the following scale. Please make only one selection per statement.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
My mentor takes a personal interest in my career					
My mentor helps me coordinate professional goals					
My mentor has devoted special time and					

consideration to my career					
I share personal problems with my mentor					
I exchange confidences with my mentor					
I consider my mentor to be a friend					
I try to model my behavior after my mentor					
I admire my mentor's ability to motivate others					
I respect my mentor's ability to teach others					

21. What is the gender of [mentor 4]?

- a. Female
- b. Male
- c. Non-binary

22. What is the race of [mentor 4]?

- a. Alaskan Native
- b. American Indian
- c. Asian
- d. Black or African-American
- e. Hawaiian or other Pacific Islander
- f. White
- g. Other

Mentor 5

23. What is the primary social arena that you know [mentor 5] from?

- a. Work
- b. Family
- c. School

- d. Community
- e. Professional organization
- f. Other

24. For [mentor 5], please indicate to what extent you agree or disagree with the below statements on the following scale. Please make only one selection per statement.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
My mentor takes a personal interest in my career					
My mentor helps me coordinate professional goals					
My mentor has devoted special time and consideration to my career					
I share personal problems with my mentor					
I exchange confidences with my mentor					
I consider my mentor to be a friend					
I try to model my behavior after my mentor					
I admire my mentor's ability to motivate others					
I respect my mentor's ability to					

teach others					
--------------	--	--	--	--	--

25. What is the gender of [mentor 5]?
- Female
 - Male
 - Non-binary
26. What is the race of [mentor 5]?
- Alaskan Native
 - American Indian
 - Asian
 - Black or African-American
 - Hawaiian or other Pacific Islander
 - White
 - Other
27. What is the likelihood that mentor 1 and 2 talk to each other independently of you? In other words, do they have a relationship independently of you?
- Yes
 - Maybe
 - No
 - Choose not to respond
28. What is the likelihood that mentor 1 and 3 talk to each other independently of you? In other words, do they have a relationship independently of you?
- Yes
 - Maybe
 - No
29. What is the likelihood that mentor 1 and 4 talk to each other independently of you? In other words, do they have a relationship independently of you?
- Yes
 - Maybe
 - No
30. What is the likelihood that mentor 1 and 5 talk to each other independently of you? In other words, do they have a relationship independently of you?
- Yes
 - Maybe
 - No
31. What is the likelihood that mentor 2 and 3 talk to each other independently of you? In other words, do they have a relationship independently of you?
- Yes
 - Maybe

- c. No
 - d. Choose not to respond
32. What is the likelihood that mentor 2 and 4 talk to each other independently of you? In other words, do they have a relationship independently of you?
- a. Yes
 - b. Maybe
 - c. No
33. What is the likelihood that mentor 2 and 5 talk to each other independently of you? In other words, do they have a relationship independently of you?
- a. Yes
 - b. Maybe
 - c. No
34. What is the likelihood that mentor 3 and 4 talk to each other independently of you? In other words, do they have a relationship independently of you?
- a. Yes
 - b. Maybe
 - c. No
35. What is the likelihood that mentor 3 and 5 talk to each other independently of you? In other words, do they have a relationship independently of you?
- a. Yes
 - b. Maybe
 - c. No
36. What is the likelihood that mentor 4 and 5 talk to each other independently of you? In other words, do they have a relationship independently of you?
- a. Yes
 - b. Maybe
 - c. No

Section 3

Instructions

37. Please review the below list of healthcare manager skills in the domain of relationship management. For each skill, please consider where you would fall on the scale of skill acquisition, based on the following levels and their definition.

Novice (1) - An individual's primary focus is understanding and gaining information in order to comprehend the skills needed. You have the level of experience gained in a classroom setting or on-the-job training. You are expected to need help when performing the skill.

Competent (3) - People with considerable experience develop competence in solving problems within learned guidelines and rules. You are able to successfully complete the competency as requested. Help from experts may be required from time to time, but you can usually perform the skill independently.

Expert (5) - Experts work intuitively analyzing, recognizing patterns, critiquing and solving problems with ideas and expertise. You are known as the expert in this area. You can provide guidance, troubleshoot and answer questions related to this competency.

	Novice (1)	(2)	Competent (3)	(4)	Expert (5)
Organizational structure and relationships					
Build collaborative relationships					
Demonstrate effective interpersonal relations					
Develop and maintain medical staff relationships					
Develop and maintain supplier relationships					
Identify stakeholder needs/expectations					
Provide internal customer service					
Practice and value shared decision making					
Other professional norms and standards of					

behaviors as defined by professions such as AHA, physician's oaths and other professional pledges					
Creating an ethical culture in an organization					

Instructions

38. Please review the below list of healthcare manager skills in the domain of leadership skills and behavior. For each skill, please consider where you would fall on the scale of skill acquisition, based on the following levels and their definition.

Novice (1) - An individual's primary focus is understanding and gaining information in order to comprehend the skills needed. You have the level of experience gained in a classroom setting or on-the-job training. You are expected to need help when performing the skill.

Competent (3) - People with considerable experience develop competence in solving problems within learned guidelines and rules. You are able to successfully complete the competency as requested. Help from experts may be required from time to time, but you can usually perform the skill independently.

Expert (5) - Experts work intuitively analyzing, recognizing patterns, critiquing and solving problems with ideas and expertise. You are known as the expert in this area. You can provide guidance, troubleshoot and answer questions related to this competency.

	Novice (1)	(2)	Competent (3)	(4)	Expert (5)
Leadership styles/techniques					
Leadership theory					

and situational applications					
Potential impacts and consequences of decision making in situations both internal and external					
Adhere to legal and regulatory standards					
Champion solutions and encourage decision making					
Develop external relationships					
Collaborative techniques for engaging and working with physicians					
Incorporate and apply management techniques and theories into leadership activities					
Foster an environment of mutual trust					
Support and mentor high-potential talent within the organization					
Advocate and participate in healthcare policy initiatives					

Section 4

You are almost done with the survey! We just have two more questions about you.

39. What is your gender?

- a. Female
- b. Male
- c. Non-binary

40. What is your race?

- a. Alaskan Native
- b. American Indian
- c. Asian
- d. Black or African-American
- e. Hawaii or other Pacific Islander
- f. White
- g. Other

Appendix B

Recruitment Email to Potential Study Participants

Dear Colleagues:

I am a fellow member of the American College of Healthcare Executives (ACHE) and work in operations management within the healthcare management field. I am reaching out to invite you to **participate in my dissertation research**.

The title of my study is *Networking Matters: Exploring the Developmental Networks of Healthcare Managers and the Relationship to Job Competency Development*. This study is being conducted under the supervision of Dr. Linnette Werner, Associate Dean of Graduate Programs at Hamline University, in St. Paul, Minnesota.

The **purpose of this study is to examine the relationship between having a developmental network and the development of job competencies for healthcare managers** working in the field of healthcare management. For this study, healthcare managers are defined by their position in the organization and the range of management functions they perform.

The data that is collected through the web survey will be analyzed for the purposes of this study and reported in the final dissertation. The data is anonymous and will not be associated with you. The data will be stored securely and only available to myself and my supervisor Linnette Werner. Within six months of the study completion, the data will be destroyed.

To participate in this study, please follow this link and complete the informed consent form. After consenting to the study, you will begin the web survey.

Please contact me with questions by email at lchristopherson02@hamline.edu or by phone at 612-702-8190. Additionally, you may reach my dissertation advisor Linnette Werener by emailing her at lwerner01@hamline.edu.

Thank you in advance,

Laura A. Christopherson, M.B.A.
lchristopherson02@hamline.edu
612-702-8190

Appendix C Research Consent

Informed Consent to Participate in Research

You are being asked to participate in a research study. This form provides you with information about the study. If you would like a copy of this consent form, please take a screenshot of this page to keep for your records or email

lchristopherson02@hamline.edu for a copy for your records. This will be the only document linking your participation to the study. If you choose not to receive a copy, there will be no record of your participation in this survey and your answers will remain anonymous.

This page provides important information about what you will be asked to do during the study, about the risks and benefits of the study, and about your rights as a research participant.

- If you have any questions about or do not understand something in this form, you should ask the research team for more information by emailing lchristopherson02@hamline.edu.
- You should feel free to discuss your potential participation with anyone you choose, such as family or friends, before you decide to participate.
- Do not agree to participate in this study unless the research team has answered your questions and you decide that you want to be part of this study.
- Your participation is entirely voluntary, and you can refuse to participate or withdraw at any time.

Title of Research Study

Networking Matters: Exploring the Developmental Networks of Healthcare Managers and the Relationship to Job Competency Development.

Student Researcher:

Laura Christopherson
lchristopherson02@hamline.edu

Faculty Advisor:

Dr. Linnette Werner
Associate Dean of Graduate Programs
651-523- 2190
lwerner01@hamline.edu

The Research Topic

This study examines the mentoring networks of healthcare managers in the United States from the perspectives of the managers. The purpose of the study is to

determine if there is a relationship between having a mentoring network and the development of job competencies for healthcare managers. This includes collecting information about the managers' network size and the mentoring received from their mentors.

Participation in the Study

If you choose to participate in this study, you will be asked to complete a one-time online questionnaire. You may complete this survey independently. The survey should take approximately 15-20 minutes to complete.

Study Funding

This study is being conducted without funding.

Study Risks

The risks to participating in this study are minimal. By participating in this study, there is a small chance you may feel uncomfortable answering questions. Additionally, with any research study, the loss of confidentiality is always a risk. However, all measures are being taken to protect the confidentiality of the data. The data will be stored securely and the researchers will be the only persons with access. In addition, there may be risks that are currently unknown or unforeseeable. Please contact me by email at Ichristopherson02@hamline.edu or by phone at 612-702-8190 to discuss this if you wish. You may also contact my faculty advisor Linnette Werner by email at lwerner01@hamline.edu or by phone at 651-523- 2190.

To protect the privacy and confidentiality of your data, the data will be collected through a web based survey software called Qualtrics. Access to the survey data is password protected and only accessible by the researchers. Once collected, the data will be de-identified. All data for the study will be destroyed within one year following completion of the dissertation defense.

Study Recruitment and Duration

Between 500-1000 individuals will be asked to participate in this study. Recruitment is expected to continue through June 15, 2022.

Benefits of the Study

This study could yield new information about the mentoring networks of healthcare managers and the relationship to job competency development. This could expand generalizable knowledge about this topic and could be used to inform directions for future research. The findings of this study may be published in academic journals to inform healthcare managers, healthcare organizations, professional organizations and

the general public about the relationship between having a mentoring network and job competency development. This could lead to changes in how individuals and organizations approach job competency development. Ultimately, this could increase the benefits to healthcare organizations and the professional development of healthcare managers.

Costs of Participating

There is no cost for participating in this study.

Compensation

There is no compensation for completing this study.

Voluntary Participation

Your participation in this study is entirely voluntary. You are free to refuse to participate in the study, and your refusal will not influence your current or future relationships with Hamline University. In addition, if significant new findings develop during the course of the research that may affect your willingness to continue participation, we will provide that information to you.

Withdrawing from the Study

You are free to withdraw your consent and stop participation in this research study at any time without penalty or loss of benefits for which you may be entitled. If you wish to stop your participation in this research study for any reason, simply stop taking the survey and exit the program. You may also contact Linnette Werner at lwerner01@hamline.edu, or by calling 651-523- 2190 for any questions, concerns, suggestions, or complaints about the research and your experience as a participant in the study. In addition, if you have questions about your rights as a research participant, please contact the Institutional Review Board at Hamline University at IRB@hamline.edu. Or, you may contact the Institutional Review Board at the Mayo Clinic at 507-266-4000.

Researcher's Benefit

The student researcher will gain no benefit from your participation in this study beyond completion of the dissertation and the publication and/or presentation of the results obtained from the study, and the invaluable research experience and hands-on learning that will be gained as a part of their educational experience.

Availability of the Research

The study findings are considered public scholarship and the abstract and final product will be cataloged in Hamline's Bush Library Digital Commons, a searchable electronic

repository and that it may be published or used in other ways, such as in conference presentations or published in research journals.