DEVELOPING ONLINE PROFESSIONAL DEVELOPMENT FOR PHYSICIANS DURING A GLOBAL PANDEMIC: GROUP SALIENCE, COMMUNICATION, RELATIONSHIP BUILDING, AND STRESS REDUCTION

by

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A dissertation submitted to Johns Hopkins University in conformity with the requirements for the degree of Doctor of Education

Baltimore, Maryland

November 2021

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Abstract

Professional education for physicians remains an important research topic. However, the influence of physician identity development when creating education content is not widely researched. Indeed, varying levels of social identity among physicians influence in-group/out-group behavior with peers across an organization and impact peer-to-peer relationship building, communication, and how they perceive stress. An emergent mixed methods design was used to examine how group saliency (related to identity development) influences physician communication, relationship building, and stress. An intervention of eight online sessions attempted to intervene on physician group saliency during intergroup communications to enhance relationship building and reduce stress. Due to the COVID-19 pandemic and low completion rates with the physician population, the intervention included other medical clinicians (e.g., nurses, nurse practitioners, etc.). Semi-structured interviews were added after the intervention did not collect adequate data for analysis. These interviews helped to understand clinicians’ lived experience with creating and completing online and live professional development education prior to and during a pandemic. The aim of this study was to understand more fully how clinicians use their social identity to relate to other clinicians in their environment. COVID-19 during the time of the intervention presented unique challenges and only one physician completed the entire intervention. Between 21-24 clinicians completed intervention pre-surveys and 19 interviews were conducted with non-intervention participants.

Results suggest that group saliency influences relationship building, communication, and stress in a variety of ways, such as expectations to discuss a patient, how to respond to a colleague, institutional expectations on role, and institutional support with stress. Results also suggest clinicians are stressed from challenging interpersonal relationships, but many would not actively
seek out content to reduce stress. While study participants did not explicitly state a relationship between social identity and coordinated care, results indicate that social identity variances across clinician roles impacts coordinated care efforts as well as relationship building and communication with other clinicians. This study supports the hypothesis that social identity variances impact coordinated care for patients and confirms how different clinicians or specialties relate to one another. While intervention results were not able to validate these findings through the pre-post-surveys, it offers a promising next step for future researchers.

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DEVELOPING ONLINE PROFESSIONAL DEVELOPMENT FOR PHYSICIANS DURING

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Dedication

This dissertation is dedicated to Ronin Bally Remington. You made this dissertation process more difficult and much more rewarding. You kept me going through dark nights, early mornings, and each day in between towards the end of this dissertation process. You were my purpose and my motivation to make it through to the end. While you were too young to know how much you encouraged me, you were a wonderful companion along the way. Thank you for helping me drive towards my goals.
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At the outset of this body of work, the intent was to better understand the connection between physician social identity and how it influences their peer-to-peer engagement and stress. Specifically, the aim of the original dissertation study was to intervene on the factor of physician group salience to enhance peer-to-peer communication, relationship building, and stress reduction within their professional contexts. The study contained a series of online, self-paced professional development sessions that addressed varying levels of social identity among physicians using a mindfulness-based approach.

Due to the global pandemic that started in February of 2020, the intervention study was not able to be implemented in the manner anticipated. The original target population was physicians, however, due to low completion of the online intervention, the study was expanded to all clinicians. Additionally, the intervention study originally intended to gather all data through the learning management system (LMS). However, due to only one physician completing the entire intervention over the course of a year-long recruitment process, the intervention then expanded to include semi-structured interviews with clinicians. This evolution of the study resulted in a different approach to answering the research questions and how to consider the effects of the global pandemic on the target population and problem of practice.

Ultimately, this dissertation research being conducted during the time of a global pandemic may have provided insights into professional education for physicians and clinicians.
that would not have happened otherwise. Additionally, the timing of this research offered an additional lens to look at social identity of physicians and clinicians based on a new healthcare landscape that did not exist prior to February 2020. Therefore, I am hopeful that the extenuating circumstances surrounding the completion of this dissertation research helps to elucidate the need to explore how social identity development may influence physicians and, potentially, all medical professionals, when creating professional development content.

People often develop identities based on the profession they select. These identities allow the individual to associate with a specific group and adhere to norms within that group (Stets & Burke, 2000). Physicians, like other formal professions such as lawyers and nurses, develop an identity when they enter formal schooling through to when they retire or leave the profession. From the time they enter medical school, complete residency and fellowship, to entering the workforce, many significant identity changes occur. In fact, how physicians enter the workforce, as well as the public perception of the physician, has changed over the last 50 years and influences physician identity development (O’Malley, Bond, Berenson, 2011; Schlesinger, 2002).

Data indicate that physicians continue to take on employment with hospitals and other healthcare organizations despite the view that quality of care is not increased and costs do not decrease (American Medical Association, 2017; O'Malley et al., 2011; The Physicians Foundation, 2016). A physician employee is defined as a physician who is directly employed by an institution and receives an agreed upon rate for time worked (O'Malley et al., 2011). In contrast, an independent or contracted physician are those physicians who operate as an owner of a practice and/or provides services for an institution based on a contracted rate (O'Malley et al., 2011; The Physicians Foundation, 2016). In 2016, 47.1 percent of U.S. physicians were employees of an organization, marking a 6.7 percent increase from 2012 (American Medical
Association, 2017). However, total physician employment at hospitals (compared to independent or contracted employment) between the years of 2012 and 2016, saw an increase from 5.6 percent to 7.4 percent. These results are displayed in Figure 1.1, which shows a comparison of physician employment between the years of 2012 and 2016. Additionally, in a survey conducted by The Physicians Foundation (2016), 66.2 percent of independent and employed physician respondents indicated they somewhat disagreed or mostly disagreed with the statement “Hospital employment of physicians is a positive trend likely to enhance quality of care and decrease costs” (p. 13).

![Figure 1.1. Comparison of physician employment between the years of 2012 and 2016.](image)

While physician employment at hospitals and other healthcare organizations continues to rise, literature suggests that peer-to-peer physician engagement continues to decrease (Whitlock & Stark, 2014). Peer-to-peer physician engagement is the relationships that physicians build with one another to develop cross-collaborative unions (Whitlock & Stark, 2014). Through peer engagement, a physician is likely to develop a social identity. In the physician context, social
identity is defined as a group identity where the physician categorizes themselves with physicians of similar background and qualities (Stets & Burke, 2000).

**Problem of Practice**

The problem of practice is how varying levels of social identity among physicians influences in-group/out-group behavior with peers across an organization. These levels impact physician peer-to-peer relationship building, which includes communication and engagement, as well as an impact to stress and/or burnout, occupational identity, and organizational identification (Ashforth & Mael, 1989; Dukerich, Golden, & Shortell, 2002; Hekman, Bigley, Steensma, & Hereford, 2009). Varying levels of social identity impacts coordination of care which ultimately connects to quality of patient care outcomes (Haslam & Ellemers, 2011). To orient readers with key terms, a definition of each is provided in Table 1.

Table 1

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
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<tbody>
<tr>
<td>Social Identity</td>
<td>A group identity where the physician categorizes themselves with physicians of similar background and qualities (Stets &amp; Burke, 2000).</td>
</tr>
<tr>
<td>Physician Employee</td>
<td>A physician who is directly employed by an institution and receives an agreed upon salary rate for time worked (O'Malley et al., 2011).</td>
</tr>
<tr>
<td>Peer-to-Peer Engagement</td>
<td>The relationships that physicians build with one another to develop cross-collaborative unions (Whitlock &amp; Stark, 2014).</td>
</tr>
<tr>
<td>Human Agency</td>
<td>The way individuals formulate intentions of career and/or life choices and act upon those intentions (Bandura, 1989, 2006; Chen, 2006).</td>
</tr>
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</table>
Burnout  Cognitive, emotional, and physical exhaustion from repeated and continual exposure to demanding situations (Thomas & Lankau, 2009).

Occupational Identity  An individual identity where the physician focuses on achieving personal career goals and success (Dobrzykowski & Tarafdar, 2017; Skorikov & Vondracek, 2011; Stets & Burke, 2000).

Organizational Identification  Organizational identification is defined as how an individual develops a collective identity and internalized association with the company employing them (Ashforth & Mael, 1989).

Coordination of Care  The ability for clinicians and caregivers to share relevant and vital patient information with each other in an attempt to improve patient outcomes (Schultz & McDonald, 2014).

Quality of Patient Care  "The degree to which health care services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge" (Institute of Medicine & Lohr, 1990, p. 21).

Group Saliency  Group saliency, as outlined by Stets and Burke (2000), is the product of making a particular group identity more prominent than an individual identity.

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**Theoretical Framework**

To understand how the complexities of the physician network influence identity development, the theoretical framework developed by Bronfenbrenner (1979) and refined by Neal and Neal (2013) is discussed. Bronfenbrenner (1979) explains the components of the ecological systems theory (EST) related to human development. He outlines the various systems
affecting how humans develop over time and how that development impacts society from a broader chronological lens. The systems outlined in Bronfenbrenner’s (1979) work are 1) microsystems, 2) mesosystems, 3) exosystems, 4) macrosystems, 5) chronosystems. Bronfenbrenner also explains the different variables that influence these five systems; variables such as time, proximal processes, and genetics.

A framework based on EST contains five systems and begins with microsystem, or the individual’s direct environment, which they have control over. Next, a mesosystem, which can include multiple separate, but interacting microsystems within the individual’s environment which the individual may have some influence within. Third, the exosystem, or the system that is external to the individual, which can directly influence outcomes within the individual’s life. Fourth, the macro system, involves the social patterns influencing the relationships and continued interactions for the individual. Finally, the chronosystem provides an overarching timespan of collective events and interactions from all the other systems.

A networked version of ecological systems theory (EST), developed by Neal and Neal (2013), offers an alternative way to approach Bronfenbrenner’s EST model. In the updated version, Neal and Neal suggest that a networked approach, rather than nested, enables systems to build from one another and interact based on changes within settings. The networked approach frames how a central individual views the development of self amongst levels of interconnected settings or systems. For example, the networked approach would follow a physician, to explain how social dynamics impact their structures and relationships through interactions and settings within and across each system. Therefore, Neal and Neal’s networked model provides the theoretical framework to examine the impact of social identity (macro) on relationship building,
engagement and communication (micro, meso), physician identity formation (meso), and contextual factors influencing physician social identity development (exo, chrono).

Shown in Figure 1.2, is an extensive, but not exhaustive list of factors contributing to the problem situated within the networked EST framework. For instance, in the networked EST model the physician may develop a specific occupational identity at the microsystem level while interacting with peers, hospital administrators, and patients at a mesosystem level. Additionally, because of the organization’s structure at the exosystem level, the physician may or may not develop an organizational identification at the macrosystem level. Each of these networked systems intersect in the chronosystem level which impacts the physician’s pattern development of social identity, peer engagement, and organizational identification over the course of a career. However, for the purposes of this paper, the systems of meso, macro, and chrono are used to understand the impact on varying levels of social identity in physicians.

**Figure 1.2.** Contributing factors within a networked ecological systems theory (EST). A networked ecological systems theory approach to outlining multiple factors contributing to the problem of practice. The Chrono arrow represents the impact of time on all the factors in the

**Conceptual Framework**

**Social Identity Theory**

As a conceptual framework, social identity theory (Ashforth & Mael, 1989; Spears, 2011; Tajfel, 1978; Tajfel & Turner, 1986) offers the structure to investigate physician identity when group identity is salient. Additionally, social cognitive theory (Bandura, 1989, 2006) integrates how the identity forms based on cognitive functions. Figure 1.3 shows how social identity theory and social cognitive theory are useful frameworks to examine how the physician’s social identity impacts in-group/out-group behaviors, including the engagement with peers, the development of organizational identification and occupational identity, as well as the effects of continued stress and/or burnout on social identity development. These factors influence coordination of care and ultimately the outcome on quality of patient care.
Figure 1.3. Conceptual framework for social identity and social cognitive theories. Social identity and social cognitive processes overlap in the dynamic and fluid exchange to shape the factors contributing to social identity development. The blue arrows represent the reciprocal nature of social cognitive processes and how the factors in the boxes interact. It is believed that the factors under adaptation either reinforce or reduce associated effects of social identity.

Several studies recognize the beneficial impact of developing a relationship with peers to create a physician’s social identity and how it can influence overall engagement within an organization (Mishra, Anderson, Angst, & Agarwal, 2012; Spaulding, Gamm, & Menser, 2014; Swensen, Kabcenell, & Shanafelt, 2016). Additionally, upon an initial review of available literature, a gap in the research related to physician identity development was identified. Specifically, how physician-employees, compared to non-employed or independent physicians,
cognitively construct and manage a social identity within organizations, including the impact of that social identity and cognition on coordination of care amongst providers. Swensen et al. (2016) indicates how peer engagement and interaction not only influence the physician’s social identity, but also an individual’s occupational identity. However, as suggested by Tajfel (1978) and Tajfel and Turner (1986), the development of an identity cannot occur without the involvement of cognition.

**Social Cognitive Theory**

Because humans are not static creatures, it is important to consider how physicians change their perspective and adapt to changing medical community demands. Social cognitive theory promotes an agentic approach to explain how humans change their social categorizations throughout life (Bandura, 1989, 2006). In fact, Bandura (2001) proposed three primary aspects of social cognitive development: human development, adaptation, and change. As displayed in Figure 1.3, human development cognitive processes overlap with social identity to influence all aspects of physician development. Through adaptive cognitive processes (e.g., adapting from an independent practice to an employee of an organization), the impact on social identity bears out into the areas of the physician’s mesosystem, such as organizational identity and occupational identity (Ashforth & Mael, 1989; Bandura, 2006; Tajfel, 1978; Tajfel & Turner, 1986). The social cognitive process of change occurs when social identity becomes internalized and is leveraged to produce meaningful outcomes, which may include coordination of care and quality of patient care (Spears, 2011). Of importance, this agentic and fluid approach allows individuals to categorize themselves within a social group and create intentional relationships with other individuals who match with their identity (Bandura, 1989). The act of intentional creation and categorization of social groups promotes agentic behavior amongst the group (Haslam &
Ellemers, 2011). Additionally, individuals who are part of these social groups are constantly regulating self-categorization and in-group/out-group comparisons (Bandura, 2006).

In-groups and out-groups represent the self- and other-categorization that occurs when an individual identifies with a specific group (Bandura, 2006; Tajfel, 1978). For instance, a physician from one specialty may view peers from the same specialty as part of their in-group. Conversely, peers from a different specialty may be viewed as part of an out-group. The dichotomy between in-group and out-group association enables individuals to discern between roles within the group, expectations of group behavior, and differentiate between values belonging to each group (Tajfel, 1978). This also leads to the saliency with which the group members use during interactions. Group saliency, as outlined by Stets and Burke (2000), is the product of making a particular group identity more prominent than an individual identity. Indeed, Tajfel and Turner (1986) noted in-group behavior promotes collaboration and commitment to a shared goal (e.g., increasing central-venous catheter removal in dialysis patients). In fact, Pinazo and Breso (2017) examined in-group/out-group categorization in relation to social identity and cognitive processes and found that mindfulness meditation influenced the in-group/out-group behaviors. Specifically, out-group discrimination tendencies were reduced, which allowed the participants to be more inclusive of the out-group.

Recognizing the close relationship between social identity theory and social cognitive theory is crucial to understand how meso, macro, and chronosystem settings influence the fluctuations in social identity development amongst physicians. Moreover, the identity development and cognitive aspects within the problem of practice highlights the importance to understand the impact on coordination of care and quality of patient care.
Factors Related to the POP

A review of the available literature begins with physician identity formation, including occupational identity and organizational identification, specifically related to engagement. Next, the concept of physician stress and/or burnout is discussed and the impact on coordination of care. Finally, an additional factor that influences physician social identity development identified in the literature, but not included in the conceptual framework, is presented.

**Physician Identity Formation**

Physician identity formation is the construction of how a physician, employed at a healthcare organization, develops an occupational identity while maintaining a social identity tied to the organization’s physician network (Grimes, 2010; Haslam & Ellemers, 2011; Khalili, Orchard, Spence Laschinger, & Farah, 2013; Spears, 2011). Social identity is an important component that drives a physician-employee to situate themselves within the broader physician population at the workplace (Haslam & Ellemers, 2011; Khalili et al., 2013; Spears, 2011). Additionally, occupational identity supports the individual identity the physician creates within the larger physician community (Khalili et al., 2013). Occupational identity is defined as an individual identity where the physician focuses on achieving personal career goals and success (Dobrzykowski & Tarafdar, 2017; Skorikov & Vondracek, 2011; Stets & Burke, 2000). Spears (2011) contends that no single identity is more important or takes precedent over another identity. Rather, Spears (2011) suggests that each identity plays an important role to develop the individual holistically, thus making each identity relevant and purposeful in specific contexts, such as an organization or professional community. Therefore, in the context of the meso and macrosystem setting, the physician identity formation is crucial to foster the development of relationships within peer groups, initiate knowledge sharing, and situate the individual amongst
the broader organization. For physician-employees, the formation of an individual occupational identity is necessary to feel connected to the social identity of a physician community within the organization (Hirschi & Herrmann, 2013; Khalili et al., 2013; Neufeld, Fang, & Wan, 2013).

**Occupational identity theory.** Occupational identity appears to be developed by the individual at the micro level while meso level influences have an effect on identity formation. The history of occupational identity theory builds from Erikson’s (1963, 1968) identity theory and includes Holland’s (1985) interpretation of occupational identity, also referred to as vocational identity. Like Elam (1994), Skorikov and Vondracek (2011) outlined Holland’s theory of occupational identity as a way to understand how an individual’s personality develops for career positioning, thus assisting or hindering the progression through career options and opportunities, as well as overall satisfaction. To understand this theory more, Nauta (2010) explains the six components of human personality and environmental influences that make up Holland’s theory. The six components include Realistic, Investigative, Artistic, Social, Enterprising, and Conventional, or RIASEC for short. Using these components combined with an assessment created by Holland, researchers can examine an individual’s likelihood for selecting and staying within an occupational field (Elam, 1994; Nauta, 2010; Skorikov & Vondracek, 2011). For instance, Elam’s (1994) study used 6,997 medical school student responses to entrance exam questions and graduation specialty selection questionnaire data. Elam found that students who scored a higher level of Holland’s (1985) Investigative personality (i.e., studied hard sciences like biology during undergraduate schooling) were more likely to select surgery as a career, whereas students who scored higher on the Arts personality (i.e., studied humanities during undergraduate schooling) were more likely to choose psychiatry as a career. Elam’s study supports Holland’s occupational assessment using RIASEC components but did
suggest that several medical specialties need to be examined and added to the existing database to fully assess Holland’s theory.

Within the literature, the concept of job, career, and calling also play a role in how the individual’s viewpoint of the occupation may significantly influence the formation of occupational identity (Walsh & Gordon, 2008). A calling refers to how an individual views the current occupation as intrinsically motivating and inherently part of their overall personal identity, not just an occupational identity (Hirschi & Herrmann, 2013). This individual also derives deep satisfaction from the work performed regardless of monetary or organizational rewards (Peterson, MacFarlane, & Osborn, 2017; Praskova, Creed, & Hood, 2015). Adding to research conducted by Wrzesniewski, McCauley, Rozin, and Schwartz (1997), Hirschi and Herrmann (2012, 2013) conducted two studies examining occupational identity. In the first study, Hirschi and Herrmann (2012) examined occupational identity from a sample of 256 undergraduate students. Participants were asked to rate their career identity using a questionnaire with subscales pertaining to presence of calling, vocational identity achievement, core self-evaluations, and life satisfaction. The results found that viewing the current occupation as only a job does not develop any sort of identity associated with the work performed. Which corroborates with Wrzesniewski et al.’s (1997) assertion that an individual who views their current occupation as a career will build an occupational identity around the work performed.

To understand occupational identity further, a study was conducted with students. In this second study, Hirschi and Herrmann (2013) examined occupational identity from a sample of 846 undergraduate students. Participants were asked to rate their career identity using a questionnaire with subscales pertaining to degrees of calling, career planning, career decidedness, and career self-efficacy. Results indicated that associating a career identity with
calling significantly increases an individual’s career planning or preparation. Hirschi and Herrmann (2013) did not specify any particular callings or jobs in this study and noted future research would benefit from more controlled experiments to understand the causal effects between calling and career preparation. Both studies highlight the importance of calling and the influence on occupational identity development.

Finally, research by Kyratsis, Atun, Phillips, Tracey, and George (2017), sampled 113 physicians and used semi-structured interviews to understand how identity is impacted by a calling or career at the micro and macro system settings. Additionally, Kyratsis et al. observed the participants during naturalistic settings to understand how data collected from the interviews compared with real-life situations. Results indicated that when individuals develop an occupational identity based on a career or calling they are more likely to possess autonomy. The development of autonomy is another aspect of human agency and how an individual formulates intentions of career and/or life choices and act upon those intentions (Bandura, 1989, 2006; Chen, 2006). The research on occupational identity builds on Praskova et al.’s (2015) findings that individuals feel more self-efficacious as well when career or calling are emphasized. In fact, Jager, Tutty, and Kao (2017) surveyed 2,263 physicians on calling and burnout and found a “significant association” with the number of physicians who responded to questions related to calling as “true” with the responses to physicians that responded to questions related to burnout as “no burnout symptoms” (p. 418). Levels of burnout are important to understand calling because, as Jager et al. discovered, the less burned out an individual is, the more likely they are to have a strong occupational identity which positively impacts agentic behaviors, such as self-efficacy and autonomy. Although no direct research was found on the overall percentage of physicians that believe the medical profession is their calling, it is important to recognize that
studies like Jager et al. (2017) have found there to be a relationship between calling and burnout. Therefore, depending on the strength of a physician’s occupational identity to career or calling, occupational identity may influence how they use metacognitive strategies (e.g., self-reflection, reappraisal, etc.) to impart adaptation or change strategies into their work. For instance, if a physician associates their work as a calling, according to Kyratsis et al. (2017), the physician will be more autonomous, self-efficacious, and more likely to continue to adapt to the evolving medical field.

Environmental and contextual differences also impact occupational identity. However, few empirical studies relate specific connections to physician occupational identity development and/or deterioration. Therefore, it is important to examine environmental and contextual on overall occupational identity development outside of the medical field (Nauta, 2010; Walsh & Gordon, 2008). First, the environmental and contextual impacts may influence how an individual experiences the concept of occupation based on standards and expectations developed from family or peer groups (Alexander & Wiley, 1981; Praskova et al., 2015; Skorikov & Vondracek, 2011). Related to family and peer groups, an individual developing an occupational identity examines parental or mentor occupational roles to formulate a concept of occupational identity, determining if the identity examples match expectations for self (Alexander & Wiley, 1981). If the individual deems the identity examples as non-matches, then they are more likely to seek and join groups that provide alignment to self-expectations of occupational identity (Peterson et al., 2017; Pratt, Rockmann, & Kaufmann, 2006). Therefore, understanding how family and other types of contextual and environmental variables may influence occupational identity remain important considerations.
When considering adaptation to contextual and environmental needs of the medical field, Spyridonidis, Hendy, and Barlow (2015) acknowledged that when physicians develop the occupational identity based on career or calling, self-efficacy may be threatened. In their study, Spyridonidis et al. (2015) interviewed 56 physicians who recently accepted a newly created manager-physician role within their organization. Semi-structured interviews over a 5-year period yielded data about manager-physician self-efficacy in this role, as well as other administrative and organizational considerations. A couple of these considerations include the introduction of electronic medical records for patient care documentation and taking on the responsibilities of a leadership role outside of medical expertise. After conducting 210 interviews, Spyridonidis et al. (2015) coded the interview transcripts and several themes emerged. These themes focused on financial incentives, status, and personal learning. Additionally, three distinct identity themes of participant adaptation to the new role emerged, which included innovators, skeptics, and late majority. The authors identified innovators as the individuals who automatically accepted the role and reflected upon it positively. Skeptics reflected individuals who found difficulty in accepting the role and remained distant throughout the study. Late majority individuals were averse to the role at first, but eventually accepted the role as well. The authors found that over half of the participants were coded as late majority and noted that many of the participants in this category felt that the new role negatively impacted their identity as a physician. Indeed, the saliency of developing a new identity within the physician-manager role was key to how participants were coded as one of the three adapted identities. This study promotes the impact of using cognitive processes to adapt to a new organizational and occupation environment within the meso setting. Without adaptation, change
to occupational identity and organizational identification is slowed or halted, as indicated by the late majority participants.

**Organizational identification and peer engagement.** Organizational identification is defined as how an individual develops a collective identity and internalized association with the company employing them (Ashforth & Mael, 1989). A distinction between identity and identification is that with identification an individual develops belonging or association with a broad “human aggregate” instead of an individual entity (Ashforth & Mael, 1989, p. 21). For instance, a physician may have an occupational identity with a specific medical specialty but may also have a broader identification or association with the hospital to achieve a shared mission and goal. At a cognitive level, Bandura (2006) noted it is important to recognize that individuals can have multiple identities and identifications and each contains varying levels of perceived agency, such as self-efficacy and autonomy. At the meso level, organizational identification fosters engagement with peers, which may enable physicians to experience an increase in relationship building, communication, and a stronger occupational identity (Dobrzykowski & Tarafdar, 2017; Skorikov & Vondracek, 2011; Stets & Burke, 2000).

Additional studies were conducted to understand how organizational identification impacts peer engagement, autonomy, and occupational identity. In fact, Hekman et al. (2009) surveyed 193 physicians and physician assistants at a large healthcare organization. As part of the study, the organization enacted a new secure messaging guideline in order to respond to patients timelier, to decrease face-to-face visits, reduce time to see the patient, and decrease overall costs for the organization. The study found that participants who had a strong organizational identification adopted the new messaging guideline faster than those with weak organizational identification. In fact, the results showed when participants felt that their actions
to adopt the strategy were being reviewed by peers and other administrators, they were more likely to adhere to the secure messaging guideline, which Hekman et al. (2009) labeled as “social influence” (p. 1325). The ability for peers and other members of the organization to influence the participant’s actions enhances the argument of how organizational identification impacts peer engagement and autonomy. Perhaps the most interesting results of this study were that when occupational identity was high, the adoption of the secure messaging guideline was low, which indicates a division between how the participant has adapted their professional identity with their identification to the organization. The results of this study suggest organizational identification can influence many other factors in the development of physician social identity.

**Physician Stress And/or Burnout**

Physician burnout and stress may cause significant issues with coordination of care (Rosenstein, 2012; Virtanen et al., 2009). Burnout is defined as cognitive, emotional, and physical exhaustion from repeated and continual exposure to demanding situations (Thomas & Lankau, 2009). Coordination of care, or care coordination, is the ability for clinicians and caregivers to share relevant and vital patient information with each other in an attempt to improve patient outcomes (Schultz & McDonald, 2014). According to a 2018 Medscape study (Peckham, 2018) surveying 15,543 physicians from all specialties, a total of 42% reported feeling burned out. These findings add to a 2016 study of 17,236 physicians, where 48.6% of physicians responded as often or always feeling burned out (The Physicians Foundation, 2016). Additionally, Rosenstein (2012) found that two-thirds of 2,000 physicians surveyed identified as being stressed or burned out. These studies highlight the prevalence of physician burnout and stress. Considering these results, additional studies reveal how the continued consequences of burnout and stress impact physician relationships with peers and patients (Anthony-McMann,
Ellinger, Astakhova, & Halbesleben, 2017; Haslam & Ellemers, 2011; Rosenstein, 2012; Sochos, Bowers, & Kinman, 2012; Thomas & Lankau, 2009). Specifically, stress causes the brain to create hormones (e.g., cortisol), which activate the body and nervous system to react appropriately (Banks, Tartar, & Welhaf, 2014; Richardson, Rice, & Devine, 2014). During periods of prolonged stress hormones, the body becomes resistant to the effects of the cortisol, leading to improper reactivity of the brain, body, and nervous systems during a stressful situation (Banks et al., 2014; Kent, Devonport, Lane, Nicholls, & Friesen, 2018). When physician relationships are strained due to burnout and stress, coordination of care for patients may also be strained – leading to a decrease in quality of care and an increase in healthcare costs (Thomas & Lankau, 2009). This evidence highlights the importance of recognizing the effects of physician burnout and stress on cognitive development and social identity formation. Unfortunately, burnout acknowledgement and prevention remain an under-identified and under-researched area of healthcare (Phipps-Taylor & Shortell, 2016; Swensen et al., 2016).

**Outcomes of Coordination of Care and Quality of Patient Care**

Although research indicates that coordination of care can be challenging to measure, it continues to be studied as a mechanism that influences quality of care (Trogdon et al., 2018). To examine this, a study conducted by Porras-Javier, Bromley, Lopez, & Coker (2018) looked at the communication and collaboration between primary care physicians (PCPs) and mental health clinicians. Specifically, Porras-Javier et al. examined the referral process for how patients on Medicaid in an urban California setting are referred from a PCP to a community mental health facility. The authors conducted semi-structured interviews with 10 PCPs and six clinicians from a mental health facility to examine how communication and collaboration from PCP to mental health services impacted patient care. After a three-phase coding approach of the transcripts, the
authors found that reduced communication among physicians led to a reduction in coordination of care. According to participants, communications at any point in the mental health referral process would have been beneficial to improve coordination of patient care and transition the patient back to the PCP after mental health services were complete and the patient was stable. To improve communication and collaboration, participants, as well as Porras-Javier et al. (2018), suggested interventions that introduce educational and communication strategies.

Therefore, examining strategies that enhance communication between providers may provide insights on how social identity and in-group/out-group mentality remains a crucial component to understanding the problem. Several recent studies indicate that communication among not only providers, but also with patients, improves quality of patient care (Beach et al., 2013; Trogdon et al., 2018; Vimalananda, Dvorin, Fincke, Tardiff, Bokhour, 2018). In the qualitative analysis of 25 clinician participant responses, Vimalananda et al. (2018) identified the strategies of direct communication and relationships with peers to be a strong determining factor of whether coordination of care occurred and improved the patient care. Investigating how communication and physician relationships influence coordination of care enables a deeper understanding of the complexity of physician social identity and how individual interactions at the meso and macro levels impact patients.

**Additional Factor Not Included in the Conceptual Framework**

**Marketplace competition.** To better understand the landscape of the problem, Schlesinger (2002) contextualizes the medical community in the early 1960s. During this time, Schlesinger noted an influx of newly graduated physicians coming into communities. The volume of physicians entering the market between the 1960s through the 1990s created excessive per capita supply, therefore creating a natural drop in demand and an increase in competition for
patients amongst those physicians. Moreover, new physicians who needed to pay back student loans encountered a limited supply of patients seeking a physician. Schlesinger (2002) indicated that this scenario led to an increase in physicians choosing hospital employment instead of independent practice. From the macrosystem perspective, the broader healthcare field did not anticipate the effects of choosing employment over independent practice and the impact it would have on physician identity or how it would alter the physician’s agentic construction.

In the 1990s, managed care organizations (MCOs) and health maintenance organizations (HMOs) dominated the healthcare landscape and compelled hospitals, insurance companies, and physicians to adopt cost effective practices (Catlin & Cowan, 2015; Morrisey, Alexander, Burns, & Johnson, 1999). In tandem with MCOs and HMOs, the government expanded its reach into the healthcare field during this time. For instance, the Clinton administration pushed for, but ultimately failed to pass the Health Security Act, which would have acted as a measure for physicians and healthcare companies to adhere to cost containment and responsible healthcare practices (Davidson & Chismar, 2007; Schlesinger, 2002). Over the next 20 years, Congress passed several additional government healthcare initiatives aimed at reducing or containing healthcare costs (Catlin & Cowan, 2015), promoting healthcare access to everyone through the Affordable Care Act of 2010 (Obama, 2016; Office of the Legislative Counsel, 2010), and using technology to care for patients through the HITECH Act of 2009 (Office of the Legislative Counsel, 2010). Each time a government initiative to regulate the healthcare field passed, a new set of mandates and criteria followed that physicians were required to follow. These mandates and broad physician employment over the last half century influence how physicians develop social and occupational identity, and professional identification.
Summary

As physician employment in hospitals continues to rise, employers need to identify ways to address the varying levels of social identity amongst physicians. As noted previously, varying levels of social identity among physicians influence in-group/out-group behavior with peers across an organization which impacts physician peer-to-peer engagement (e.g., communication and relationship building), stress and/or burnout, occupational identity, and organizational identification (Ashforth & Mael, 1989; Dukerich et al., 2002; Hekman et al., 2009). These factors result in an effect on coordination of care which ultimately impacts quality of patient care (Haslam & Ellemers, 2011). Considering how the meso (e.g., peers, patients, administrators), macro (e.g., hospitals, insurance companies, MCOs), and chrono (e.g., evolution of position, changes in the healthcare landscape, and roles over time) systems influence social identity and cognition enables researchers and practitioners to understand the impact on, not only the physician, but also the patient-physician and physician-clinician dyadic relationships and outcomes. Together, social identity theory, as well as social cognitive theory provide a framework to examine how an individual develops a social identity and constructs, adapts, and changes their identity using cognitive strategies. By measuring the factors contributing to varying levels of physician social identity, we can better understand the impact on coordination of care and overall quality of patient care.

A review of available scholarship leads to the argument that higher levels of social identity and lower group salience among physicians improves communication among providers, which ultimately increases physician peer-to-peer engagement and identity formation and reduces physician stress and/or burnout. Through improved communication, relationship building, and stress reduction, overall coordination of care and quality of patient care may be
increased. Measurement of the factors adds to the body of literature on how social identity influences communication and the impact on in-group/out-group behavior and stress/burnout. This research extends the current literature on the physician-employee population and social identity development.
Chapter Two

Needs Assessment

Introduction

This needs assessment explored how physicians experience human agency within the professional context (Bandura, 2006; Chen, 2006). Additionally, the factor of occupational identity, or the individual identity where a physician focuses on achieving personal career goals and success, is assessed (Dobrzykowski & Tarafdar, 2017; Skorikov & Vondracek, 2011; Stets & Burke, 2000). Measuring these two factors provided an opportunity to examine how physicians construct human agency and how occupational identity influences physician identity formation. Overall, studying these factors contributes to the research literature related to physician social identity development.

Context of the Study

The context of the study is the United States healthcare field. Specifically, physicians working as employees within healthcare organizations and schools represent the target population. Based on data from 2015, the United States contains an estimated total of 140,000 physician employees (Physicians Advocacy Institute, 2016). Within the medical context, it is estimated that 1,813 physicians maintain employment. For instance, a physician may be employed at a hospital, medical school, or other healthcare entity. Physicians from all specialties are included as part of this context, however, medical residents, fellows, physician assistants, and nurse practitioners were not included as part of the target population. The study of the physician-employee population, as opposed to independent practicing physicians, is a gap in the research literature. Specifically, the study of how physician-employees are adapting their identity to employment and organizational identification. Additionally, how physician-employee human
agency continues to adapt and develop as the healthcare field changes and the government enacts new policies for medical care (Schlesinger, 2002). Therefore, this research examines the physician human agency and how occupational identity is developed and what factors influence career orientation.

**Statement of the Purpose**

The intended purpose of this needs assessment is to understand the engagement levels of physicians and how human agency and occupational identity influence physician social identity. Further, the goal of this study is to understand how to promote social identity, like peer-to-peer engagement, among physicians to enhance coordination of care. Peer-to-peer engagement may be a factor influenced by varying levels of human agency. As discovered by Bandura (2006) and Chen (2006), research suggests physicians who experience higher levels of professional engagement experience an increase in human agency. Further, several studies indicate that a stronger occupational identity encourages achievement of personal career goals and success, in addition to increasing engagement within the organization overall (Dobrzykowski & Tarafdar, 2017; Skorikov & Vondracek, 2011; Stets & Burke, 2000). Therefore, the literature may indicate that there is an association between physician human agency and their orientation or identity with a career in medicine. Additionally, this potential association between human agency and occupational identity or career orientation is thought to influence social identity and the impact on relationship building.

**Research Questions for the Needs Assessment**

The guiding theoretical and conceptual frameworks offer a platform for investigating this problem of practice. In Table 2, the three questions guiding the research are categorized into the
meso, macro, and/or chrono ecological system setting, the factor(s) contributing to the social identity, and a cognitive process(es) associated with developing the identity.

Table 2

*Research Questions and the Theoretical and Conceptual Frameworks*

<table>
<thead>
<tr>
<th>Research Question</th>
<th>EST Setting(s)</th>
<th>Social Identity Factor(s)</th>
<th>Cognitive Process(es)</th>
</tr>
</thead>
<tbody>
<tr>
<td>What influence does human agency have on physician occupational identity?</td>
<td>Meso</td>
<td>Human Agency</td>
<td>Human Development</td>
</tr>
<tr>
<td>What factors influence the development of physician occupational identity?</td>
<td>Meso, Macro</td>
<td>Occupational Identity</td>
<td>Human Development, Adaptation, Change/Outcomes</td>
</tr>
<tr>
<td>How does mindfulness practice influence a physician’s human agency and career orientation?</td>
<td>Meso, Chrono</td>
<td>Human Agency, Occupational Identity</td>
<td>Adaptation, Change/Outcomes</td>
</tr>
</tbody>
</table>

**Method**

This section describes the research design for this needs assessment, as well as participant determination and measures or instrumentation. Data sources for the data collection process are also discussed and reviewed.

**Research Design**

The aim of this needs assessment is to explore physician human agency and occupational identity. This exploratory approach included a one-time survey provided electronically to physicians within various medical specialties. The independent variable is social identity and the dependent variables are human agency, occupational identity/career orientation, and mindfulness practice. Although social identity is not explicitly measured in this research, additional
qualitative assessments not included in this needs assessment would be beneficial to understand the relationship between variables.

**Participants**

The study population included physicians at healthcare corporations, medical schools, or hospitals. Due to challenges obtaining approval to collect data within the professional context, physicians outside the professional context were recruited for the sample through three different methods. First, participants were recruited via a simple random sampling method (Lochmiller & Lester, 2017) based on a pool of 500 physicians identified through the web-based, social media platform LinkedIn. Of that 500, a random sample of 300 were selected. The LinkedIn private messaging system restricts the number of messages sent by one individual to minimize indiscriminate messaging to large numbers of users (also known as spamming). Therefore, due to these limitations on LinkedIn, a reduced total of 104 messages containing the survey were sent over the course of one week.

Next, a convenience sample (Lochmiller & Lester, 2017) was used to conduct two advertising campaigns via LinkedIn and Facebook to solicit participation from a target audience. Criteria for the target audience included physicians based in the United States with an affiliation with a hospital or other healthcare organization (e.g., a dialysis company). However, this method only yielded non-clicks (e.g., a potential respondent viewed the survey solicitation, but did not click to access the survey), which do not result in survey interaction. These non-clicks included 85 engagements on Facebook and 6,338 impressions on LinkedIn. Overall, the advertising campaign only resulted in one click on the survey link which indicates that an advertising campaign may not be the best mechanism to engage this population. Therefore, an additional convenience sample method involved collecting a total of 1,989 physician email addresses from
17 medical schools’ websites within the United States. Physicians were identified on the websites through title demarcation, medical school graduation information, and physician-specific affiliation (e.g., senior physician on a local hospital board). Due to bounced, invalid, and duplicate email addresses, 1,977 surveys were sent to physicians using the Qualtrics survey application. A reminder email was sent to all participants between one to three days after the initial email.

Power dynamic considerations related to the researcher’s own affiliation with a healthcare organization may influence participation. For instance, using LinkedIn to identify and recruit participants must consider how the researcher’s public title and workplace affiliation may detract from or strengthen participation. Therefore, the power dynamic considerations were important to ensure participants felt safe participating in the study. Institutional review board (IRB) approval was obtained prior to collecting any data.

**Measures or Instrumentation**

The instruments selected examine the dependent variables of human agency (Bandura, 2006; Chen, 2006) and physician identity formation, specifically occupational identity (Ashforth & Mael, 1989; Dobrzykowski & Tarafdar, 2017; Skorikov & Vondracek, 2011; Stets & Burke, 2000). For the needs assessment, both variables were measured through a single quantitative survey instrument.

**Quantitative instrument.** The quantitative instrument is comprised of demographic questions and two scales measuring human agency and career orientation/occupational identity. The instrument contains a total of 53 questions, including demographics, survey questions related to the variables, and optional personal identifiers (See Appendix A). To show how each item in the survey related to the research questions, a table in Appendix C is available.
**Human agency.** Human agency, for the purposes of the study, is defined as the way individuals formulate intentions of career and/or life choices and act upon those intentions (Bandura, 2006; Chen, 2006). To measure this construct, Tapal, Oren, Dar, and Eitam (2017) designed a Sense of Agency questionnaire that examines implicit and explicit forms of agency that an individual may experience. Additionally, Tapal et al. developed this instrument to measure positive and negative sense of agency, which is expected to capture the metacognitive strategies used to determine agentic actions. For instance, a question to gauge positive human agency would be, “I am completely responsible for everything that results from my actions.” In contrast, a question to gauge negative human agency would be, “Nothing I do is actually voluntary.” Both questions are examples of how the survey instrument measures an individual’s intentionality and self-reflection when considering their behavior. After an evaluation and review of an original 36 statements related to human agency, Tapal et al. (2017) narrowed the instrument to a 13-question survey aimed at identifying positive and negative sense of agency. This scale contained 13 items on a 5-point Likert scale ranging from 1 (*not at all true*) to 5 (*extremely true*).

To address concerns of construct validity, Tapal et al. (2017) collected additional data on the constructs from other relevant research measuring the same constructs. From this evaluation, the authors concluded construct validity was met based (see Tapal et al., 2017, p. 5) on correlations and significance between data collected from their study and studies assessing various forms of human agency (e.g., self-efficacy, free will, locus of control, etc.). Additionally, the authors tested reliability using a second data set collected based on the same survey instrument. From this second data set, Tapal et al. confirmed reliability using McDonald’s test and found it to be equal to 0.80, which falls into an acceptable level of reliability.
Physician identity formation. An operational definition of physician identity formation is the way a physician perceives or positions themselves within a profession or career in medicine (Pratt et al., 2006; Skorikov & Vondracek, 2011). To measure the identification, or orientation, within a specific career, Leong, Rosenberg, and Chong (2013) used Schein’s (1985) Career Orientation Inventory. Schein (1985) first identified eight anchors associated with how an individual orients to or identifies with a career. Leong et al. used a nine-anchor approach which is cited in recent studies to be more accurate than Schein’s original anchors (Costigan, Gurbuz, & Sigri, 2018; Danziger, Rachman-Moore, & Valency, 2008). The nine anchors of career orientation and identification include technical expertise, general managerial competence, autonomy, job tenure security, geographical security, entrepreneurship, service to a cause, pure challenge, and lifestyle integration. An explanation of each anchor for career orientation and identification is listed in Table 3.

Table 3

Career Orientation Inventory (COI) Anchors and Definitions

<table>
<thead>
<tr>
<th>COI Anchor</th>
<th>Definition</th>
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<tr>
<td>Technical expertise</td>
<td>Focus on expertise in one area of a career.</td>
</tr>
<tr>
<td>General Managerial Competence</td>
<td>Concentration on solving problems and supporting a team of individuals to meet organizational goals.</td>
</tr>
<tr>
<td>Autonomy</td>
<td>Orientation to seeking out careers or positions that allow for freedom to act with little to no supervision.</td>
</tr>
<tr>
<td>Job Tenure Security</td>
<td>Motivation to seek a position or career that provides longitudinal stability and predictability.</td>
</tr>
<tr>
<td>Geographical Security</td>
<td>Focus on seeking a position or career that provides stability or predictability for location of work.</td>
</tr>
<tr>
<td>Entrepreneurship</td>
<td>Ability to develop and implement new processes or projects based on creativity or need.</td>
</tr>
<tr>
<td>Service to a Cause</td>
<td>Focus on improving a group of individuals, location, or industry and often driven by intrinsic motivation.</td>
</tr>
<tr>
<td>Pure Challenge</td>
<td>Focus on the competitive nature of a position or career.</td>
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<tr>
<td>----------------</td>
<td>---------------------------------------------------------</td>
</tr>
<tr>
<td>Lifestyle Integration</td>
<td>Motivation to seek a position or career that balances work and home life needs.</td>
</tr>
</tbody>
</table>

Additionally, Leong et al. (2013) separated questions into two scales where the first scale contains 17 items on a 5-point Likert scale ranging from 1 (*not important at all*) to 5 (*extremely important*) and the second scale contains 12 items on a 5-point Likert scale ranging from 1 (*not at all true*) to 5 (*extremely true*). However, either the survey or the article may have an error upon review, as the survey is missing Question 8 and Question 18 is repeated twice. The authors have been notified and a response is pending. Other studies using the instrument do not report such a discrepancy and successfully use this instrument (Danziger et al., 2008). Because Danziger et al.’s study using the valid instrument was found after the survey was administered, the corrected question could not be added retroactively.

To address concerns of validity, Leong et al. (2013) evaluated correlations between the current anchors of Schein’s (1985) survey with Holland’s (1985) Career Assessment Inventory which measures the six factors of career interest (realistic, investigative, artistic, social, enterprising, conventional). The authors identified a positive correlation for construct validity between most of Schein’s and Holland’s anchors. However, the anchor of lifestyle integration was not found to be a valid measure for career orientation. Therefore, the authors recommended exercising caution when using data related to this anchor to form any conclusions. To assess reliability, Leong et al. (2013) compared the original eight anchors developed by Schein with the identified anchors used in their study. Using Cronbach’s alpha, the authors concluded the anchors fell into an acceptable level of reliability with a score of .76, except the anchor of lifestyle integration which had a lower reliability of .50. Despite a lower reliability, lifestyle integration
was retained in the current needs assessment survey because of the assumption that lifestyle integration influences a physician’s career orientation and identity (Haslam & Ellemers, 2011). However, verbiage was updated to reflect current lifestyle integration terms, such as using the term “quality of life” instead of “family” throughout the survey. The update to the verbiage supports the research questions related to human agency and mindfulness.

**Quantitative survey instrument review.** Cognitive interviews with individuals from the physician population were used to review the survey. The cognitive interview included two physicians – both employed at a medical university and one still practicing independently. The think-aloud approach instead of a specific protocol was used for the interviews (Desimone & Le Floch, 2004; Pather & Uys, 2008). In the think-aloud approach, the interviewees read each survey question aloud and then thought how they would answer the survey question, considered how another individual from the population would think of the survey question, or asked follow-up questions to the interviewer when the survey question was unclear. From these interviews, several modifications were made to the survey instrument.

**Survey modifications.** The final instrument, titled Physician Engagement and Professional Development Survey (PEPDS) (see Appendix A), combined the Sense of Agency survey (Tapal et al., 2017) and Career Orientation Inventory questionnaire (Leong et al., 2013). The first modification was the removal of 12 questions (see Appendix B for a full list of anchors and associated questions) from the Career Orientation Inventory questionnaire. This modification was based on other researcher modifications to reduce the number of questions (Pather & Uys, 2008) and to encourage completion. A second modification aimed at reducing the length of time (Pather & Uys, 2008) it takes respondents to think about an answer based on the number of available options, which resulted in an adjustment of the human agency and COI scales. The
human agency scale was changed from a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree), to a 5-point Likert scale ranging from 1 (not at all true) to 5 (extremely true). The COI instrument scales from 10-point Likert scales ranging from 0 (of no importance) to 10 (centrally important) and 0 (not at all true) to 10 (completely true) were modified to 5-point Likert scales ranging from 1 (not important at all) to 5 (extremely important) and 1 (not at all true) to 5 (extremely true). Finally, as suggested by one of the physician reviewers, verbiage related to lifestyle integration was updated to reflect current lifestyle terms, such as using the term “quality of life” instead of “family” throughout the survey. Although this was not confirmed with the study’s author, quality of life, as Post (2014) noted, explains the subjective balance between facets of an individual’s life (e.g., free time, family, work, and hobbies) and the satisfaction derived from any one of these facets of life. Therefore, this change in the survey language supports the current verbiage used to describe lifestyle integration.

**Procedure**

An electronic, web-based survey was administered between the months of June through August of 2018. Participants were first asked to complete a pre-survey consisting of demographics questions, then complete a survey related to human agency and physician identity development. Data were then loaded in SPSS and analyzed. The procedures below outline the details of the process.

**Participant Selection Process**

Participants were selected based on completion of a medical doctor degree and employment with a medical school. Each participant was notified that all survey data were completely anonymous and any personal or identifiable information was not collected at any
point in the survey unless provided by the participant. Additionally, participants did not receive compensation for participating in the study.

**Data Collection Methods**

Participants were invited to complete web-based, electronic surveys during a three-month period between the months of June and August in 2018. The survey was estimated to take participants between ten to fifteen minutes to complete. The instrument demographic section asks participants to specify age, gender, type of medical specialty (free text, open response), length of time in the position (ranging from less than 5 years to more than 31 years), and method of reimbursement or pay received for professional services (free text).

**Data Analysis**

The survey data were exported from Qualtrics, an electronic survey creator and database, and imported into SPSS, a statistical software used to analyze quantitative data. Descriptive statistics and frequencies analyses generated the demographics data tables. Next, internal reliability of each scale was individually examined through Cronbach’s alpha analysis. Then, the aggregate sums of responses to human agency and occupational identity were calculated. Finally, each research question was explored using appropriate statistical analyses.

**Findings and Discussion**

The survey distribution methods described above yielded a total of 105 responses. Of the responses, 21 surveys were opened but not started (i.e., no data were entered) and one respondent declined to participate in the study. These 22 responses were removed from the data set, which left 83 usable responses. From these responses, 57.8% of the respondents were male. Responses also included specialty and respondents identified as internal medicine the most \( n = 22 \). Table 4 describes the frequency of participants from each specialty of medicine. The category of age that
was selected most often was 36-45 and Table 5 describes the frequency of all respondent ages. As expected from the population of physician-employee population, most respondents indicated they are paid directly from an employer. To better understand the source of compensation, Table 6 displays this information including a breakdown by gender. Finally, when examining time in position, both males and females reported being in their position for five years or less. Table 7 provides a further summary of the results from time in position, including a breakdown by gender. The survey took participants an average of 18 minutes to complete, which was longer than originally anticipated.

Table 4

*Number of Participants from Each Medicine Specialty*

<table>
<thead>
<tr>
<th>Specialty</th>
<th>Frequency</th>
<th>Percent</th>
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<tbody>
<tr>
<td>Nephrology</td>
<td>3</td>
<td>3.6</td>
</tr>
<tr>
<td>Allergy Immunology</td>
<td>2</td>
<td>2.4</td>
</tr>
<tr>
<td>Internal Medicine</td>
<td>22</td>
<td>26.5</td>
</tr>
<tr>
<td>Family Medicine</td>
<td>9</td>
<td>10.8</td>
</tr>
<tr>
<td>Medical Oncology</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Pediatrics</td>
<td>6</td>
<td>7.2</td>
</tr>
<tr>
<td>Cardiology</td>
<td>6</td>
<td>7.2</td>
</tr>
<tr>
<td>Palliative Care</td>
<td>2</td>
<td>2.4</td>
</tr>
<tr>
<td>Neonatology</td>
<td>1</td>
<td>1.2</td>
</tr>
<tr>
<td>Neurology</td>
<td>3</td>
<td>3.6</td>
</tr>
<tr>
<td>Rheumatology</td>
<td>1</td>
<td>1.2</td>
</tr>
<tr>
<td>Epidemiology</td>
<td>1</td>
<td>1.2</td>
</tr>
<tr>
<td>General Surgery</td>
<td>4</td>
<td>4.8</td>
</tr>
<tr>
<td>Preventative Medicine</td>
<td>1</td>
<td>1.2</td>
</tr>
<tr>
<td>Ob/Gyn</td>
<td>1</td>
<td>1.2</td>
</tr>
<tr>
<td>Psychiatry</td>
<td>1</td>
<td>1.2</td>
</tr>
<tr>
<td>Anesthesiology</td>
<td>3</td>
<td>3.6</td>
</tr>
<tr>
<td>Dermatology</td>
<td>1</td>
<td>1.2</td>
</tr>
<tr>
<td>Other - Non-Board-Certified Specialty</td>
<td>1</td>
<td>1.2</td>
</tr>
<tr>
<td>Hospitalist</td>
<td>3</td>
<td>3.6</td>
</tr>
<tr>
<td>Maternal-Fetal Medicine</td>
<td>1</td>
<td>1.2</td>
</tr>
<tr>
<td>Pathology</td>
<td>1</td>
<td>1.2</td>
</tr>
</tbody>
</table>
Emergency 2 2.4
Laboratory Medicine 1 1.2
Infectious Disease 1 1.2
Endocrinology 1 1.2
N 83 100

Table 5

*Ages of Participants*

<table>
<thead>
<tr>
<th>Age Range</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>21-35</td>
<td>6</td>
<td>7.2</td>
</tr>
<tr>
<td>36-45</td>
<td>23</td>
<td>27.7</td>
</tr>
<tr>
<td>46-55</td>
<td>15</td>
<td>18.1</td>
</tr>
<tr>
<td>56-65</td>
<td>22</td>
<td>26.5</td>
</tr>
<tr>
<td>66+</td>
<td>17</td>
<td>20.5</td>
</tr>
<tr>
<td>N</td>
<td>83</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 6

*Source of Compensation (by gender)*

<table>
<thead>
<tr>
<th>Pay Source</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct paycheck from employer</td>
<td>45</td>
<td>93.8</td>
</tr>
<tr>
<td>Paycheck from more than 1 source</td>
<td>1</td>
<td>2.1</td>
</tr>
<tr>
<td>No Response</td>
<td>1</td>
<td>2.1</td>
</tr>
<tr>
<td>Insurance Company</td>
<td>1</td>
<td>2.1</td>
</tr>
<tr>
<td>Total</td>
<td>48</td>
<td>100</td>
</tr>
<tr>
<td>Female</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct paycheck from employer</td>
<td>32</td>
<td>91.4</td>
</tr>
<tr>
<td>Paycheck from more than 1 source</td>
<td>2</td>
<td>5.7</td>
</tr>
<tr>
<td>No Response</td>
<td>1</td>
<td>2.9</td>
</tr>
<tr>
<td>Total</td>
<td>35</td>
<td>100</td>
</tr>
</tbody>
</table>

*Note.* N = 83. Respondents in the No Response category completed the survey but did not respond to the survey item.
Table 7

*Time in Current Position (by gender)*

<table>
<thead>
<tr>
<th>Time in Position</th>
<th>Male Frequency</th>
<th>Male Percent</th>
<th>Female Frequency</th>
<th>Female Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than or equal to 5 years</td>
<td>10</td>
<td>20.8</td>
<td>8</td>
<td>22.9</td>
</tr>
<tr>
<td>6-10</td>
<td>5</td>
<td>10.4</td>
<td>8</td>
<td>22.9</td>
</tr>
<tr>
<td>11-15</td>
<td>6</td>
<td>12.5</td>
<td>7</td>
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<td>16-20</td>
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<td>21-25</td>
<td>6</td>
<td>12.5</td>
<td>1</td>
<td>2.9</td>
</tr>
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<td>26-30</td>
<td>5</td>
<td>10.4</td>
<td>3</td>
<td>8.6</td>
</tr>
<tr>
<td>31+</td>
<td>8</td>
<td>16.7</td>
<td>2</td>
<td>5.7</td>
</tr>
<tr>
<td>Total</td>
<td>48</td>
<td>100</td>
<td>35</td>
<td>100</td>
</tr>
</tbody>
</table>

*Note.* N = 83

The demographics information presented in the tables provides visibility into the sample population. This information is beneficial when comparing the specialties, time in position, gender, and other salient sample population identifiers. Additionally, these demographics enabled a richer review of human agency and occupational identity data.

**Human Agency**

Using Tapal et al.’s (2017) instrument to measure human agency, 13 items were loaded to test reliability. Tapal et al. noted the scale measures positive and negative sense of agency, which resulted in seven of the items to be reverse coded (see Appendix A for reverse coded questions designated with an “R”). SPSS software was used to generate a Cronbach’s analysis of the 13 items related to human agency. The alpha score for scale reliability was found to be .76, which indicates the instrument has acceptable inter-item reliability and is relatively consistent with Tapal et al.’s (2017) reliability score of .80. Deleting any of the items would not significantly improve the overall reliability score. Additionally, positive and negative sense of agency questions were analyzed for internal validity using Pearson correlation, resulting in $r(77) = .30, p < .01$, which indicates a small to moderate inter-item correlation.
For questions pertaining to human agency, the range of responses had a minimum potential score of 13, indicating a low human agency, and a maximum potential score of 65, indicating high human agency. The estimated ranges of this instrument were not provided by Tapal et al. (2017), so it is unclear if this is in congruence with other studies that use this instrument. The mean aggregate for human agency, based on 78 respondents (five participants did not answer the questions related to human agency), was a score of 50. This result indicates participants generally rated themselves as believing the statements related to human agency were true 77% of the time. This response was based on questionnaire instructions guiding participants to rate human agency, as a whole throughout their lives, not just as a physician. Additionally, t-test results indicated that there is no difference between physician gender and human agency scores: $t(76) = .91, p = .37$. Figure 1.4 displays the aggregate sums of participant responses to questions pertaining to human agency.
Physician Identity Formation

The instrument designed by Leong et al. (2013) contained 41 items and resulted in a .76 reliability using Cronbach’s alpha analysis. In the current study, 12 items were removed from the instrument and a Cronbach analysis of the remaining 29 items related to career orientation yielded a reliability of .80. This reliability not only indicates an acceptable level of inter-item reliability, it also indicates that reliability increased despite the removal of 12 items. Career orientation items were analyzed by the nine anchors for construct validity. Because these data were not a linear distribution, the anchors were analyzed for validity using Spearman’s rank correlation. All the career orientation items were found to have statistically significant and positive correlations related to at least one other item. For instance, Job Tenure Security was found to be correlated to Service to a Cause ($r_s(79) = .38, p < .00$), Technical Expertise ($r_s(79)$)
= .31, p < .00), and Geographical Security ($r_s(79) = .43, p = .00$). This result is as expected, according to Leong et al. (2013) since these four anchors typically are associated with individuals who choose a career that will provide stability, allow them to feel as if they are using that career to support a genuine need, choose a career that fosters an expertise in a specific area, and often that career will provide them geographical stability as well. To understand whether the constructs are measuring what they are intended to measure, it is important to compare them to the other anchors that consistently result in a congruence between the anchor and the responses (Leong et al., 2013; Lochmiller & Lester, 2017). The construct validity results of this analysis are important to understand how each of these items and anchors connect with one another, thus providing a more valid measure of the career orientation overall. The internal validity Table 8 displays the results of this analysis.
<table>
<thead>
<tr>
<th>Career Orientation Inventory (COI) Anchor Internal Validity Correlations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Managerial Competence</td>
</tr>
<tr>
<td>Correlation Coefficient</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
</tr>
<tr>
<td>N</td>
</tr>
<tr>
<td>Autonomy</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
</tr>
<tr>
<td>N</td>
</tr>
<tr>
<td>Job Tenure Security</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
</tr>
<tr>
<td>N</td>
</tr>
<tr>
<td>Service to a Cause</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
</tr>
<tr>
<td>N</td>
</tr>
<tr>
<td>Pure Challenge</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
</tr>
</tbody>
</table>

Table 8

Prepared by: [Name]
Prepared: [Date]
### Lifestyle Integration

<table>
<thead>
<tr>
<th>N</th>
<th>80</th>
<th>81</th>
<th>80</th>
<th>79</th>
<th>81</th>
<th>80</th>
<th>81</th>
<th>80</th>
<th>80</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correlation Coefficient</td>
<td>0.144</td>
<td><strong>0.592</strong></td>
<td>0.043</td>
<td>0.074</td>
<td>-0.068</td>
<td>1</td>
<td>0.036</td>
<td>-0.024</td>
<td><strong>0.232</strong></td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>0.198</td>
<td>0.701</td>
<td>0.512</td>
<td>0.549</td>
<td>-</td>
<td>0.746</td>
<td>0.829</td>
<td><strong>0.037</strong></td>
<td></td>
</tr>
</tbody>
</table>

### Entrepreneurial

<table>
<thead>
<tr>
<th>N</th>
<th>82</th>
<th>81</th>
<th>82</th>
<th>81</th>
<th>80</th>
<th>82</th>
<th>81</th>
<th>82</th>
<th>82</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correlation Coefficient</td>
<td><strong>0.409</strong></td>
<td>0.054</td>
<td>-0.063</td>
<td>0.055</td>
<td><strong>0.273</strong></td>
<td>0.036</td>
<td>1</td>
<td>0.024</td>
<td>-0.128</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>0</td>
<td>0.627</td>
<td>0.574</td>
<td>0.623</td>
<td><strong>0.014</strong></td>
<td>0.746</td>
<td>-</td>
<td>0.832</td>
<td>0.253</td>
</tr>
</tbody>
</table>

### Technical Expertise

<table>
<thead>
<tr>
<th>N</th>
<th>81</th>
<th>82</th>
<th>80</th>
<th>80</th>
<th>81</th>
<th>80</th>
<th>80</th>
<th>81</th>
<th>82</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correlation Coefficient</td>
<td>0.072</td>
<td>0.128</td>
<td><strong>0.312</strong></td>
<td><strong>0.288</strong></td>
<td>0.197</td>
<td>-0.024</td>
<td>0.024</td>
<td>1</td>
<td>-0.051</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>0.523</td>
<td>0.252</td>
<td><strong>0.005</strong></td>
<td><strong>0.01</strong></td>
<td>0.079</td>
<td>0.829</td>
<td>0.832</td>
<td>-</td>
<td>0.654</td>
</tr>
</tbody>
</table>

### Geographical

<table>
<thead>
<tr>
<th>N</th>
<th>82</th>
<th>82</th>
<th>81</th>
<th>80</th>
<th>80</th>
<th>81</th>
<th>82</th>
<th>81</th>
<th>82</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correlation Coefficient</td>
<td>-0.086</td>
<td>0.121</td>
<td><strong>0.433</strong></td>
<td><strong>0.232</strong></td>
<td>-0.128</td>
<td>-0.051</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>0.444</td>
<td>0.277</td>
<td>0</td>
<td>0.238</td>
<td>0.82</td>
<td><strong>0.037</strong></td>
<td>0.253</td>
<td>0.654</td>
<td>-</td>
</tr>
</tbody>
</table>

**Note.** Boldface text indicates a correlation between the anchors to show internal validity. Items not showing any correlation between the anchors may suggest that these items are not closely related and therefore may not provide a valid measure of how the two items are interrelated when looking at respondent data.

** Correlation between anchors is significant at the 0.01 level (2-tailed), which suggests items are more closely related and may provide a more valid measure of how the two items are interrelated when looking at respondent data.

* Correlation between anchors is significant at the 0.05 level (2-tailed), which suggests items are still closely related and could provide a valid measure of how the two items are interrelated when looking at respondent data.
For questions pertaining to career orientation, the range for responses included a minimum potential score of 29, indicating a low career orientation, and a maximum potential score of 145, indicating a high career orientation. The mean career orientation, based on 75 responses (8 responses were missing and were removed from the data set), is a score of 90. This score indicates that overall physicians believe career orientation is important and true to their personal and professional lives 62% of the time. Figure 1.5 displays the aggregate sums of participant responses to questions pertaining to career orientation. Additionally, independent t-test results indicated there is no difference by physician gender in occupational identity scores: \( t(73) = .02, p = .998. \)

![Participant Aggregate COI](image)

*Figure 1.5. Aggregate sum of career orientation inventory (COI).*

**Research Question Findings**

What influence does human agency have on physician occupational identity? Data on human agency were found to be relatively normally distributed, however, career orientation
did not. Therefore, Spearman’s correlation test was used to examine the correlation between the two variables. Using Spearman’s correlation analysis, overall career orientation and human agency were not found to be correlated \((r(72) = -0.14, p = .23)\). However, a positive, as well as negative, and significant correlation between human agency and three career orientation anchors were found within the sample specialties of internal medicine, family medicine, and cardiology. Table 9 displays the correlations associated within each specialty. These correlations are important to understand how specific aspects of career or occupational identity can influence human agency. For instance, internal medicine physicians may be less likely to believe their occupational identity allows for entrepreneurial actions, which negatively impacts their agency. Additionally, a family medicine physician may feel their occupational identity allows for less agency when related to lifestyle integration factors. Finally, a cardiologist may feel as though their occupational identity is associated highly with staying in one location due to the nature of developing a relationship with patients in a particular geographical area or because of occupational stability in one location. These or other factors may support a higher sense of agency because the cardiologist may feel as though they can formulate intentions of career and/or life choices and act upon those intentions (Bandura, 1989, 2006; Chen, 2006).

Table 9

**COI Anchor and Human Agency Correlations**

<table>
<thead>
<tr>
<th>Specialty</th>
<th>COI Anchor</th>
<th>Correlation with Human Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal medicine</td>
<td>Entrepreneurial</td>
<td>( r(19) = -0.82, p = .01 )</td>
</tr>
<tr>
<td>Family medicine</td>
<td>Lifestyle integration</td>
<td>( r(8) = -0.67, p = .04 )</td>
</tr>
<tr>
<td>Cardiology</td>
<td>Geographical security</td>
<td>( r(5) = 0.95, p &lt; .01 )</td>
</tr>
</tbody>
</table>

*Note.* This table displays three medical specialties correlation results that were statistically significant between career orientation anchors and human agency.
What factors influence the development of physician occupational identity? Several themes and patterns of career orientation anchors presented while using Pearson correlation analysis to compare time in position and medical specialty. To understand these data, an initial review of the total sample is presented and then a delineation of four medical specialties is reviewed.

Data related to time in position were found to be distributed relatively normally and linear. Therefore, Pearson correlation analysis examined time in position, gender, and the career orientation anchors. A Pearson correlation analysis, displayed in Table 10, identified that time in position and the career orientation anchor of lifestyle integration were negatively and significantly correlated ($r(81) = -.36, p < .01$). This finding could indicate that physicians’ time in position does not influence their beliefs about lifestyle integration or quality of life. No other correlations were found with time in position and the career orientation anchors. Further research should be conducted to understand the relationship between these variables.
Table 10

Correlations between Time in Position, Gender, and Career Orientation Anchors

<table>
<thead>
<tr>
<th></th>
<th>Time in current position</th>
<th>Managerial Competence</th>
<th>Autonomy</th>
<th>Job Tenure</th>
<th>Security</th>
<th>Service to a Cause</th>
<th>Pure Challenge</th>
<th>Lifestyle Integration</th>
<th>Entrepreneurial</th>
<th>Technical Expertise</th>
<th>Geographical</th>
<th>Gender</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time in current position</td>
<td>1</td>
<td>-</td>
<td>0.08</td>
<td>0.13</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.06</td>
<td>-</td>
<td>-</td>
<td>0.04</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>5</td>
<td>0.04</td>
<td>6</td>
<td>**</td>
<td>**</td>
<td>**</td>
<td>**</td>
<td>0.03</td>
<td>8</td>
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<td>0.20</td>
</tr>
<tr>
<td></td>
<td>8</td>
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<td>0.00</td>
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<td>0.78</td>
<td>0.66</td>
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<td>0.06</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>7</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>5</td>
<td>1</td>
<td>8</td>
<td>5</td>
<td>9</td>
<td>8</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>N</td>
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<td>83</td>
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<td>82</td>
<td>83</td>
<td>8</td>
</tr>
<tr>
<td>Managerial Competence</td>
<td>0.11</td>
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<td>0.06</td>
<td>0.00</td>
<td>0.01</td>
<td>**</td>
<td>0.15</td>
<td>0.387</td>
<td>0.03</td>
<td>0.08</td>
<td>*</td>
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<td>9</td>
<td>6</td>
<td>9</td>
<td>**</td>
<td>**</td>
<td>7</td>
<td>0.08</td>
<td>6</td>
<td>*</td>
<td>0.04</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
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<td>4</td>
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<td>0</td>
<td>4</td>
<td>2</td>
<td>0.44</td>
<td>5</td>
<td>0.01</td>
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<td>81</td>
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</tr>
<tr>
<td>Autonomy</td>
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<td>1</td>
<td>0.13</td>
<td>0.02</td>
<td>0.17</td>
<td>0.575</td>
<td>0.01</td>
<td>0.16</td>
<td>0.12</td>
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<td>1</td>
<td>**</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>*</td>
<td>*</td>
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<td>Sig. (2-tailed)</td>
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<td>-</td>
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<td>0.82</td>
<td>0.12</td>
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<td>0.88</td>
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<td>0.01</td>
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</tbody>
</table>
| Note: Boldface text represents a correlation between time in position, gender, and career orientation variables.

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).
When analyzing each medical specialty, only five specialties contained sufficient data to report results from a Pearson correlation analysis. Tables associated with this analysis can be found in Appendix D and Table 11 displays a summary of the Pearson correlation results of specialty and career orientation anchors. These tables provide results of the correlational analysis between the medical specialties of internal medicine, family medicine, oncology, pediatrics, and cardiology, and time in position, gender, and the career orientation anchors. Overall, these data suggest that medical specialties use different anchors and factors to develop occupational identity. For instance, cardiologists were found to have a slightly significant and negative correlation between technical expertise and autonomy \( (r(5) = -0.91, \ p = .01) \). This may indicate that cardiologists feel their technical expertise of the profession limits autonomy. However, oncologists were found to have a slightly significant and positive correlation between pure challenge and autonomy \( (r(4) = 0.94, \ p = .01) \). This finding may indicate that medical oncologists believe their ability to be mentally challenged and work through challenging medical issues increases autonomy. Family and internal medicine specialists were found to have a slightly significant and positive correlation between lifestyle integration and autonomy. Which may indicate these two specialties feel that their specialty profession allows them more autonomy and lifestyle integration abilities. Whereas cardiologists’ responses resulted in a slightly significant and negative correlation between technical expertise and lifestyle integration \( (r(5) = -0.84, \ p = .03) \). In contrast with family and internal medicine specialists, cardiologists may again feel limited that their technical medical expertise does not allow them to pursue a more balanced quality of life.
### Table 11

**Pearson Correlation Results of Specialty and Career Orientation Anchors**

<table>
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<th>Specialty Name</th>
<th>Positive Correlation Between Anchors</th>
<th>Negative Correlation Between Anchors</th>
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<tr>
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<td>Managerial Competency &amp; Entrepreneurial ($p = .05$)</td>
<td>Autonomy &amp; Lifestyle Integration ($p = .03$)</td>
</tr>
<tr>
<td>($n = 22$)</td>
<td>Service to a Cause &amp; Geographical Security ($p = .04$)</td>
<td>Lifestyle Integration &amp; Geographical Security ($p = .04$)</td>
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<tr>
<td>Family Medicine</td>
<td>Managerial Competency &amp; Pure Challenge ($p = .04$)</td>
<td>Autonomy &amp; Lifestyle Integration ($p = .02$)</td>
</tr>
<tr>
<td>($n = 9$)</td>
<td>Job Security &amp; Geographical Security ($p = .00$)</td>
<td>Job Security &amp; Geographical Security ($p = .00$)</td>
</tr>
<tr>
<td>Medical Oncology</td>
<td>Autonomy &amp; Pure Challenge ($p = .02$)</td>
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<tr>
<td>($n = 5$)</td>
<td></td>
<td></td>
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<tr>
<td>Pediatrics ($n = 6$)</td>
<td>Job Security &amp; Technical Expertise ($p = .00$)</td>
<td>Job Security &amp; Geographical Security ($p = .05$)</td>
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<td>Technical Expertise &amp; Geographical Security ($p = .03$)</td>
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<tr>
<td>Cardiology ($n = 6$)</td>
<td></td>
<td>Autonomy &amp; Technical Expertise ($p = .01$)</td>
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<td></td>
<td>Lifestyle Integration &amp; Technical Expertise ($p = .03$)</td>
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</table>

*Note. P-values represent the career orientation anchor correlation statistical significance between the anchors.*

**How does mindfulness practice influence a physician’s human agency and career orientation?** A Kruskal-Wallis test was used to analyze data for this question because the independent variable, mindfulness meditation activity, contains three groups and the dependent
variables, career orientation and human agency, are categorical (Knapp, 2018). Results indicated that there is no difference in the response to engaging in mindfulness activities according to career orientation ($p = .09$). In contrast, the results indicated there is a difference in responses to engaging in mindfulness activities according to human agency ($p = .02$). Additionally, a chi-square analysis indicated there is no relationship between physician gender and engagement with mindfulness activities: $X^2 (2, n = 83) = 4.56, p = .10$. However, as Table 12 displays, a three-way crosstab analysis produced some interesting results related to gender, specialty, and engagement with mindfulness activities. For instance, the analysis reveals that there appears to be an association between males and females in the internal medicine, family medicine, and pediatrics specialties with responding “Yes” to engaging in mindfulness activities. In contrast, cardiologists were found to be less likely to indicate any (“Yes” or “Maybe”) engagement in mindfulness activities. Upon further investigation of these results, age among all cardiologist respondents ($n = 6$) ranged between 55-65 and 66+. Whereas, majority of age ranges among internal medicine, family medicine, and pediatrics were between 21-55. The results of these analyses shown in Tables 12 and 13, highlight the potential relationship between age and mindfulness activity engagement. However, these results cannot suggest that mindfulness engagement activity influences career orientation or human agency. Indeed, the opposite may be more true and further research will need to be conducted to understand the causal relationships.

Table 12

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Note. Boldface text indicates the differences among gender and specialty when engaging in mindfulness activities.
Table 13

Gender and Age Range Crosstab Analysis for Mindfulness Activity Engagement

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Note. Boldface text indicates the differences among gender and age when engaging in mindfulness activities.

Discussion

The findings of this needs assessment indicated that participants develop human agency in ways that are not related to the nine career anchors theorized by Leong et al. (2013). However, results on human agency showed 49 out of 78 (63%) participants rated themselves between 3.85 and 4.85, where 5 is the highest possible rating of human agency. This finding indicates that physician-employees have relatively high human agency. Additionally, results on career orientation showed 44 out of 75 (59%) participants rated themselves between a 3 and 4.17, where 5 is the highest possible rating of career orientation or identity. This finding suggests that occupational identity is slightly lower than human agency when employed as a physician. Findings indicate that occupational identity influences a physician’s overall identity formation. However, further research should be conducted with non-physician-employees to compare between the two populations. Because this study only uses a small sample of the national
physician population, it is difficult to draw conclusions based on the current data. A sample of 14,000, or 10%, of the population would provide a more accurate account of current occupational identity and human agency among physicians. However, the guiding research questions for the study allow for a deeper data analysis.

**What Influence Does Human Agency Have on Physician Occupational Identity?**

Referencing Table 11, findings related to this research question indicated that correlations between specific aspects of career or occupational identity can influence human agency depending on medical specialty. For instance, internal medicine physicians were found to have negative impacts on human agency from entrepreneurial actions. Family medicine physician responses indicated occupational identity negatively influenced agency when compared to lifestyle integration. Finally, cardiologist responses suggest geographical location and occupational identity enabled a higher sense of agency. These findings highlight the differences in occupational identity formation and agency amongst medical specialties. Therefore, how physicians develop human agency may need to be examined through alternative instruments to understand other influences.

**What Factors Influence the Development of Physician Occupational Identity?**

Several factors found in these data related to this research question were shown to have an influence on occupational identity by medical specialty. First, t-test results indicated that there is no difference between occupational identity scores by physician gender: $t(73) = .02, p = .998$. Appendix D and Table 11 highlight five medical specialties and the correlations between factors influencing identity development. These findings highlighted the importance of how each physician may view themselves within their respective medical specialty and what factors of the identity influence others (e.g., autonomy and technical expertise). Because of the small sample
size within each specialty, it may be hard to generalize these findings. However, these data do provide relevant information to assist with the development and consideration of an appropriate intervention.

**How Does Mindfulness Practice Influence A Physician’s Human Agency and Career Orientation?**

Determining how mindfulness practice and engagement in mindfulness activities influences physician human agency and career orientation may be challenging to uncover. For instance, the variables of age, gender, and specialty all appear to influence mindfulness activity, however, the causal relationships have not been determined. Additionally, the reverse of this research question may be true. For instance, an internal medicine specialist may be more likely to choose that profession based on autonomous and lifestyle factors (i.e., quality of life), which may indicate they are more likely to engage in mindfulness activities anyway. Overall, the findings suggest that occupational identity, age, and gender all impact the engagement with mindfulness activities. This finding is important to understanding how micro and macro systems influence social identity. Specifically, because these variables may act as in-group/out-group criteria and inhibit collaboration among these groups.

**Summary of Discussion**

This needs assessment highlighted the importance of occupational identity anchors and human agency on the development of a physician’s professional identity. Related to specific specialties, occupational identity anchors were found to be key indicators of a physician’s interpretation of their own identity and how they felt identity influenced their career. Indeed, the needs assessment results confirm that different medical specialties identify with their profession differently. In fact, even the delineation of cardiologist which is a subspecialty of internal
medicine highlights the differences in how specialties may view themselves as different than individuals from the same medical specialty category. These findings highlight the in-group and out-group phenomena that influences social identity development, group saliency, and comparison between groups. Another finding from the needs assessment related to a question on mindfulness activity engagement, indicated that gender does not relate to the engagement of mindfulness activities. This finding is important to understand that one gender would not be more likely than the other to use mindfulness, which may impact an intervention that uses mindfulness. Finally, mindfulness activity engagement also highlighted differences across age, gender, and specialty. These results further reveal the potential categorization of in-groups and out-groups.

Therefore, an intervention will need to recognize the categorization of in-groups and out-groups that occur from varying levels of occupational identity amongst the specialties. A proposed intervention of mindfulness meditation would aim to highlight physician group saliency to reduce the out-group discrimination tendencies, which may be found when physicians identify with a specialty. Thus, the intervention would seek to influence overall physician social identity to promote a more collaborative patient care environment. However, any intervention involving multiple specialties may benefit from considering the participant’s human agency, professional identification, and/or occupational identity to produce valuable outcomes. Of note, these data were collected prior to the pandemic, yet still highlight the variances of social identity amongst physicians and the tendency to use group saliency to inform communication, relationship building, and stress reduction in the professional setting.
Chapter Three

Intervention Literature Review

**Introduction**

Social identity is a key component to understanding how a physician develops a network within their profession and interacts with peers, fellow clinicians (e.g., nurses, nurse practitioners, physician associate, etc.), and patients (Haslam & Ellemers, 2011). Part of social identity development includes the development of an occupational and/or professional identity (Haslam & Ellemers, 2011; Khalili et al., 2013; Spears, 2011). Occupational identity is defined as an individual identity where the professional focuses on achieving personal career goals and success (Dobrzykowski & Tarafdar, 2017; Skorikov & Vondracek, 2011; Stets & Burke, 2000). The needs assessment results confirmed that physicians identify with their professions differently based on medical specialty.

Variances in medical specialty identification emphasize differences throughout the medical profession. For example, results of the needs assessment indicated cardiologists perceive a negative and statistically significant correlation between technical expertise and autonomy, as well as technical expertise and lifestyle integration, referred to here as quality of life. This contrasts with family medicine specialists who perceived a positive and statistically significant correlation between lifestyle integration and autonomy. Which may be due to family medicine specialists keeping day time hours dependent on patient’s family needs and their ability to focus on a broad range of ailments. These variations in specialization and expertise could emphasize differences in social identity and saliency among the medical professions.

The differences among medical specialties may influence intergroup communication. For instance, in self-identifying their specialty on the needs assessment survey, some participants
identified as a cardiologist \((n = 6)\) while others identified with a broader category such as internal medicine \((n = 22)\). The variances in specialty identification suggests that participants used group salience to identify as cardiologists rather than internal medicine. These self-identification results from the survey reflects how social identity, through the application of group saliency, may encourage the in-group and out-group phenomena that influence between-group comparison. As discussed previously, in-groups and out-groups are defined as the self- and other-categorization that occurs when an individual identifies with a specific group (Bandura, 2006; Tajfel, 1978). The development of in-groups and out-groups relies on the degree to which an individual identifies with the in-group and how much they perceive the out-group as being different from them (Turner, 1982; Wilder & Shapiro, 1991). Figure 1.6 displays the process of how attitudes and behaviors may develop based on in-group/out-group memberships, as well as how environmental factors contribute to these membership associations. Once in-group and out-group memberships are identified, individuals acquire normative beliefs about the specializations, and attitudes and behaviors about memberships develop during interactions and communications amongst the groups (Pinazo & Breso, 2017; Stets & Burke, 2000). As individuals progress through the influences within their professional context, group membership either gets reinforced or dissolved based on what attitudes, behaviors, or beliefs each group emphasizes and how environmental factors impact the groups. These environmental factors may also include impacts to the professional context, such as a global pandemic.
A key determinant of intergroup relations is how external, or macro level, and environmental factors influence the interactions or make group identities more or less salient, thereby helping one group maintain dominance (Bender, DeVogel, & Blomberg, 1999; Stets & Burke, 2000). For instance, the propensity to ensure the in-group has better access to resources and maintain a perceived social dominance over the out-group influences how one group interacts with another (Hewstone & Jaspars, 1982). The communication and interaction between groups may result in an impact to coordination of care.

As previously mentioned, several studies indicate how physician burnout and stress may also cause significant issues with coordination of care (Peckham, 2018; Rosenstein, 2012; The Physicians Foundation, 2016; Virtanen et al., 2009). Burnout is defined as cognitive, emotional, and physical exhaustion from repeated and continual exposure to demanding situations (Thomas & Lankau, 2009). Coordination of care is the ability for clinicians and caregivers to share
relevant and vital patient information in an attempt to improve patient outcomes (McDonald et al., 2014). When considering how intergroup relations impact coordination of care, it is important to recognize how group saliency and communication between groups may impact the care a patient receives. Specifically, when patients have two physicians coordinating care, and one physician is part of the in-group, the other is part of the out-group.

Studies reveal how the continued consequences of burnout and stress impact physician relationships with peers, clinicians, and patients (Anthony-McMann et al., 2017; Haslam & Ellemers, 2011; Rosenstein, 2012; Sochos et al., 2012; Thomas & Lankau, 2009). Moreover, stress causes the brain to signal the body to produce hormones (e.g., cortisol), which activate the nervous system to react (Banks et al., 2014; Richardson et al., 2014). During periods of prolonged stress, the body becomes resistant to the effects of cortisol, leading to irregular reactivity of the brain, body, and nervous systems during a stressful situation (Banks et al., 2014; Kent et al., 2018). When physician relationships are strained due to burnout and stress, coordination of care for patients may also be strained – leading to a decrease in quality of care and an increase in healthcare costs (Thomas & Lankau, 2009; Trogdon et al., 2018). For instance, Trogdon et al. (2018) found that when physicians did not communicate with each other to coordinate care of terminally ill patients, the patient’s survival rate decreased and healthcare costs attributed to unplanned urgent care and hospitalizations increased. However, studies show that when burnout and stress are reduced through mindfulness and meditation, intergroup communication and relationship building are enhanced (Epstein, 2003; Krasner et al., 2009; Pinazo & Breso, 2017).

As discovered in the needs assessment, occupational identity, and environmental factors (e.g., employment or a pandemic affecting the healthcare landscape) may significantly influence
how physicians interact with one another contributing to the varying levels of physician social identity. Therefore, this literature review examines various approaches to address group saliency in an effort to enhance intergroup communications and relationship building, and reduce stress or other environmental factors. This review emphasizes the use of a blended intervention of interprofessional communication sessions and autogenic skill development (e.g., mindfulness meditation and relaxation techniques) to facilitate the development of intergroup communication and reduce the amount of perceived stress amongst medical providers. This review begins with an explanation of the theoretical frameworks used to guide this intervention. Next, studies are reviewed that focus on three areas of the intervention strategy: decreasing group salience, enhancing communication and relationship building, and stress/burnout reduction. Finally, the chapter closes with a summary of the review and a recommendation for the intervention.

**Theoretical and Conceptual Frameworks**

The foundations of social identity theory emphasize how individuals relate to one another based on group categorizations and the self-categorization within that group (Ashforth & Mael, 1989; Spears, 2011; Tajfel, 1978; Tajfel & Turner, 1986). The categorization of a group and its associated members contributes to the formation of an in-group and out-group labeling and to the development of group saliency (Tajfel & Turner, 1979). For instance, respondents in the needs assessment who identified as cardiologists were making the group association with cardiology more prominent than the individual identity of physician or internal medicine specialist. When group saliency is activated, Stets and Burke (2000), as well as Tajfel (1982) noted that relationship building among other members of the in-group may flourish, and relationship building between members of the out-group may be hindered. As group saliency influences the interaction, communication, and relationship building with intergroup members, the likelihood of
dichotomizing further into a preferred group increases (Deschamps, 1982; Tajfel, 1982). To understand this dichotomization better, two theoretical frameworks guide the intervention literature review and subsequent intervention proposal. These two theories are cognitive activation theory of stress (CATS) and communication accommodation theory (CAT).

Cognitive Activation Theory of Stress (CATS)

Cognitive activation theory of stress ([CATS], Meurs & Perrewé, 2011; Ursin & Eriksen, 2004) states that, based on a stressful environmental stimulus, an individual learns to develop either a positive, negative, or a no expectancy response outcome. The brain filters the perceived stressful stimuli, hence cognitive activation, to determine the expected response based on previous encounters with similar stimuli or experiences. Ursin and Eriksen (2004) posit that arousal occurs during a stressful event, which causes the release of cortisol and other chemicals in the body in an attempt to restore balance to the situation and brain. The repeated exposure, response, and consistent result based on that response form the individual’s learned behavior to handle that stressor or similar one in the future (see Figure 1.7). Indeed, once the brain develops an expected pattern of results, an individual develops a lower level of arousal to future exposure to the same or similar stimuli.

Figure 1.7. Diagram of cognitive activation theory of stress. Cognitive activation from stimuli input to brain filtering and processing of the response. Adapted from “The Cognitive Activation
**Stress reduction.** Stress reduction may be challenging for many individuals, including physicians, due to environmental stimuli. Ursin and Eriksen (2004) noted that when an individual is unable to reach a balance in their reaction to stress within the brain, or continued exposure and expected responses do not lead to outcomes that achieve a balance, the individual may develop coping techniques to manage the environmental stimulus in the future. Coping is defined as a “positive response outcome expectancy” (Ursin & Eriksen, 2004, p. 576). Coping offers the individual a method to achieve an adjusted balance in the brain that supports the individual’s ability to handle those situations. Because of the high cognitive demand of the job, physicians may experience situations that require coping techniques multiple times per day. For instance, a healthcare employer or managed care organization (MCO) may expect physicians to discuss a mutual patient upon referral; however, these interactions may lead to unpredictable responses from other specialties receiving the referral (O’Malley & Reschovsky, 2011; Porras-Javier et al., 2018). Although a physician may believe this discussion is crucial to the referral process, they are unable to force another physician to participate in a referral discussion. As the stressor of communication grows with the referring physician, they may learn a coping adaptation to avoid engaging with other physicians to coordinate care, which reduces the stressor (O’Malley & Reschovsky, 2011). Although this avoidance is not a positive outcome for the patient, it leads to a positive response outcome expectancy from the physician’s perspective because it no longer requires a potentially stressful encounter with another physician. According to CATS, if the referring physician does not call the receiving physician, there is a positive
response outcome expected because the stressor has been avoided. This example emphasizes the response outcome expectancy where the physician exercises the control they have available.

Examining intergroup communication or stress in isolation would only address a singular aspect of this phenomena. Therefore, pairing social identity and cognitive activation theory of stress (CATS) has the potential to build a foundation for an intervention. There are several interventions that can influence the two largest factors identified as affecting physician social identity in healthcare organizations today — communication and stress. Also, this theoretical framework moves beyond traditional views of organizational and occupational literature which focuses on leadership and/or professional development of physicians while neglecting the social aspects and stressors of the physician role.

**Communication Accommodation Theory (CAT)**

Communication accommodation theory (CAT) offers a framework to understand how various levels of communication, relationship building, and intergroup dynamics impact the physician population (Gallois, Ogay, & Giles, 2005). Over the past several years, research has highlighted the growing influence communication has on healthcare, specifically how physician communication relates to patient outcomes (Epstein, 1999; Hewett, Watson, Gallois, Ward, & Leggett, 2009; Omilion-Hodges & Swords, 2016). In fact, similar to the needs assessment findings, Hewett et al. (2009) found that professional identity directly impacted the propensity for physicians of varying specialties ($n = 45$; e.g., emergency medicine, internal medicine, gastroenterology, surgery, etc.) to communicate with one another. Indeed, communication and relationship building are not the only influences on intergroup dynamics and to coordinate care for patients (Beckman et al., 2012; Hewett et al., 2009). As indicated previously, stress and
burnout also influence physician role satisfaction and the ability to communicate effectively
during tense and complex patient situations (Epstein, 1999).

**Group saliency.** Acknowledging the sociohistorical contexts of intergroup dynamics
allows for an investigation of the effects of group saliency, relationship development, and
stress/burnout on physicians. After several iterations, Gallois et al.’s (2005) revised version of
communication accommodation theory (CAT) focuses on how individuals interact based on
sociohistorical contexts and preconceived patterns of behavior associated with interactions
between an individual (interpersonal) or group (intergroup). This sociohistorical context is often
dynamic based on each individual encountered, which is especially relevant to physicians. For
instance, if a cardiologist had a sociohistorical interaction with a nephrologist that was negative,
according to CAT, that interaction may influence future interactions with not only that individual,
but nephrologists as a whole. Therefore, each interaction brings specific interpersonal and
intergroup dynamics into consideration and specific strategies that may be used.

Accommodative and non-accommodative strategies are adaptive cognitive and emotional
techniques that reinforce social identity comparison and behavior with in-groups and out-groups
(Gallois et al., 2005). Moving into the norms of the CAT model, Gallois et al. highlight the
accommodative strategies used during interactions, which should be an intervention goal to teach
physicians how to use more accommodative strategies. An example of these strategies is if two
cardiologists are talking with each other, they may reinforce the in-group social identity by using
specific jargon and words that are only referenced in cardiology. This behavior is an
accommodative strategy. However, if a cardiologist is speaking with a nephrologist and using
jargon the other doctor is not familiar with, the cardiologist may reinforce the social distance
between the two specialties, thus emphasizing the out-group designation. This example
represents a non-accommodative strategy. Gallois et al. (2005) argue that each of these strategies promotes specific behavioral responses and those responses support the development of perceived attributes of the individuals.

**Relationship building.** Based on interpersonal or intergroup communications, an individual evaluates the situation and develops an intention about how to interact with another individual or group in the future (Gallois et al., 2005). As posited in the CAT model, this future intention ultimately validates and affirms the sociohistorical communication loop and how that individual associates the interaction into a cognitive and emotional outcome expectancy at an interpersonal and intergroup level. Continuing with the example of the cardiologist and nephrologist interaction, the cardiologist may evaluate the nephrologist as a member of the out-group due to not understanding the jargon used. This mental grouping in turn reinforces the out-group position of the nephrologist and as such the cardiologist’s future interactions may continue to include jargon that continues to perpetuate the nephrologist’s out-group designation.

Using CATS and CAT to examine the intervention literature provides a focused approach to understanding how group saliency impacts communication, relationship building, and stress within the physician population. Specifically, the CAT framework focuses on how physicians communicate and build relationships with one another and CATS framework orients the physician to become more aware of the stress that is occurring in their context and how they adapt to it. Additionally, both theories assist with exploring the communication barriers that exist when there are variances in social identity and when intergroup dynamics are involved.

**Intervention Literature Synthesis**

Multiple interventions from the literature were identified as a potential approach to this topic. Three target areas of a potential intervention identified from the problem of practice
include managing group salience to influence communication, relationship building, and stress reduction. Within each of these areas, different interventions support the development of social identity in physicians or the reduction of stress. The intervention literature review, therefore, examines studies that adjust physician social identity in some way, which may then be used to develop or inform a potential intervention for the problem of practice.

**Group Salience**

Group salience awareness and identification in an initial interprofessional communication session allows participants to become aware of intergroup dynamics (Haslam & Ellemers, 2011; Haslam et al., 2017). Haslam et al. (2017) described this initial orientation process as “readying” and noted that it introduces the initial concepts and definitions of group identity and salience (p. 114). In subsequent sessions, participants learn what groups are and how they operate in an organization. Learning about groups enables participants to identify their own in- or out-groups related to specialization and to begin exploring how to rethink group salience by extending the group identity. Although Haslam et al. (2017) do not provide specific dosage or time-related aspects of this initial orientation, the authors indicated the entire program, containing five sections, lasts for two months. Using the readying orientation as an initial component of an intervention would provide foundational knowledge to participants about how intergroups and group saliency influence communication, relationship building, and coordination of care. Finally, including intergroup and professional identity definitions from Tajfel (1982), Pettigrew (1998), and Skorikov and Vondracek (2011) would lend support to concepts about social identity, professional identity, and intergroup dynamics outlined in an intervention.

Examining how group saliency influences communication and relationship building can offer insights into why this topic is important to include in an intervention. Indeed, results from a
focus group study conducted by Thomson, Outram, Gilligan, and Levett-Jones (2015) corroborated with Hewett et al.’s (2009) study on how identity saliency influences intergroup communication. Both studies indicated that using professional identity and salience in an intervention highlights the interprofessional communication issues within a healthcare organization. Thomson et al.’s intervention consisted of 12 focus groups of varying professions which met for approximately one hour and each contained between two and 10 participants. The focus groups explored how different professions perceive interprofessional interaction and what value participants placed on those interactions. Thomson et al. (2015) found that participants who leveraged broader social identity, as opposed to group salience during the study allowed for a redirection of attention to team goals and patient care. Indeed, Thomson et al.’s (2015) study exemplifies the professional identity solidification that Jaye, Egan, and Smith-Han (2010) found developed within clinical communities of practice of medical students. With this understanding of how professional identity salience inhibits the social identity and interprofessional communication in a healthcare organization, it is not advisable to develop a clinical community of practice focused on specialty or practice-specific delineation as an intervention to promote intergroup communication. Because the goal of the intervention is to remove interprofessional communication barriers, using professional identity as a qualifier for entrance into a clinical community of practice would inhibit interprofessional, cross-specialty, interactions. However, other communities of practice using alternative entry qualifiers may be beneficial, such as organizational goals (i.e., multi-year objectives).

An intervention focused on group salience may benefit from understanding how stress impacts the ability to improve interprofessional communication. For instance, Mühlhaus and Bouwmeester (2016) examined how stress influences coping technique development within
high-status professionals (e.g., management consultants) and how stress influences interactions. The authors used a sequential data collection process to develop an interview protocol used on 22 full-time consultants (10 female). The authors found that when in-group saliency is highlighted, the behaviors that do not comply with in-group expectations become more pronounced to include the development of a stressed relationship, and resulted in “social exclusion” (p. 1845). This finding is consistent with the CATS framework and led Mühlhaus and Bouwmeester (2016) to suggest interventions and organizational awareness regarding how stress can negatively impact the ability for groups to interact cohesively. Additionally, the simple acknowledgment of group identity salience in professional settings is a mediating factor for interprofessional communication.

Meditation and autogenic skill development are starting to be used to address group saliency and communication barriers within the physician population. To implement Mühlhaus and Bouwmeester’s (2016) suggestion, Pinazo and Breso (2017) studied in-group associations using an 8-week mindfulness meditation course in two different studies. Focusing on the second study, 121 college students (29.1% male) participated in the 8-week mindfulness course consisting of three parts. The first part had participants develop a series of weekly goals to attain during the program. The second part encouraged participants to complete the meditation goals outlined in part one. The final part of the program emphasized social sharing of the program experience. Specific timing of each meditation course is not provided by the authors. Of the 121 participants, 58 were assigned to the treatment group receiving a mindfulness meditation course. The remaining participants were assigned to a control group that did not receive any intervention. The authors aimed to explore how mindfulness meditation can affect the likelihood of social rejection or acceptance.
Examination of the findings leads to an understanding of how meditation can influence intergroup relations. The second study results indicated that mindfulness meditation enabled the treatment group participants to experience a reduction of in-group favoritism and perceived distance with the out-group from pre- \( (M = 4.06) \), to post- \( (M = 4.57) \) course. These results were compared to the control group’s perceived distance from the out-group, whose pre- \( (M = 4.09) \) and post- \( (M = 3.92) \) results on the questionnaire did not reflect any positive changes to in-group favoritism and perceived distance. These results are important to consider for physician intergroup relations because meditation may be able to reduce the likelihood of adhering to social in-groups that prevent crucial out-group connections when coordinating care for patients. Additionally, this study suggests the ability for a form of autogenic education to challenge perceived intergroup outcome response expectancies and potentially complement an interprofessional communication session.

When considering an intervention that develops awareness and identification of group saliency, it is important to consider the types of interaction or contact during the intervention. Specifically, the type, frequency, and duration of contact among intergroups plays a key role in how intergroup relationships develop (Chien & Atwell Seate, 2017; Pinazo & Breso, 2017). Exploring the type of contact, Chien and Atwell Seate (2017) found that friendships across groups promoted an increase of positive intergroup emotions, which in turn enhanced intergroup communications, even with out-group members. This finding corroborates with the CAT framework and how sociohistorical contexts are an important aspect to communication barrier reduction.

Friendships are not the only opportunity to promote intergroup communication; extended group contact is also beneficial. For instance, Mazziotta, Rohmann, Wright, De Tezanos, and
Lutterbach (2015), De Tezanos-Pinto, Bratt, and Brown (2010), and Kende, Tropp, and Lantos (2017) found that extended group contact promoted intergroup communication and decreased anxiety among intergroups. Extended group contact is defined as how an in-group member interacts with members of the perceived out-group, and the effect it has on the other in-group members (Mazziotta et al., 2015). Provided in Figure 1.8 on the following page, is a representation of extended group versus out-group memberships. Mazziotta et al. (2015) measured extended group contact using two single-item Likert scale (1=none; 7=six or more) survey questions with a group of German adults (n = 286; 217 females), with 92% from a post-secondary institution and the remaining 8% recruited through social media. The survey asked participants to rate how many times they have witnessed a member of their in-group have positive or negative contact with an out-group member. The results showed that participants who rated positive extended group contact also rated themselves as having positive intergroup attitudes. The inverse is also true when participants rated themselves as having negative extended group contact, also rated as having negative intergroup attitudes. Results also showed that these findings were true for direct contact with an extended group member (e.g., negative direct contact with an extended group member resulted in negative intergroup attitudes).
Figure 1.8. Extended, in- and out-group memberships. This figure represents the reactions between in-group contact with individuals from an out-group that acts as an extension of the in-group interaction.

Examining how extended contact works to influence future behaviors between in- and out-groups may be an important aspect of an intervention for physicians. Kende et al. (2017) investigated the extended group contact, which led the researchers to determine that when in-group norms about cross-group contact (e.g., a member of the in-group interacts with a member of the out-group as if they were in the in-group) was viewed more positively, extended group contact, to include the out-group, was improved. The quasi-experimental intervention conducted by Kende et al. utilized existing members of an in-group and out-group as an experimental group ($n = 27$) and a control group ($n = 34$) within a post-secondary school to understand how in-group norms and contact behaviors of the group influenced future contact behaviors. For all members of the experimental group, two participants, one from an in-group, and one from an out-group,
were placed into a room for 60-minutes and instructed to take turns asking pre-determined questions to promote closeness between the two individuals. No recording of the conversations occurred; however, a pre- and post- questionnaire was administered to both the experimental and control group members to measure the impact of contact and in-group norms. As noted previously, Kende et al. (2017) did find that the contact improved out-group communication and altered the way the in-group perceived communication with out-group members. While the live interaction between group members may be beneficial, this may not work in interventions that use self-paced or asynchronous technology.

The frequency of contact between in- and out-groups is argued to be of importance when assessing intergroup relations and communications (Aberson & Haag, 2007). In a study conducted by Hoffarth and Hodson (2016), imagined contact (i.e., similar to guided imagery where participants are instructed to imagine visual scenarios or scenes) was examined to understand how participants \( n = 128 \) would react during an imagined interaction with an identified out-group member. Participants from both the control and experimental group were instructed to spend two minutes imagining contact with a member of the target group in specific scenarios provided by the researchers (e.g., riding on a train next to a member of the perceived out-group). The researchers provided specific details (e.g., the sexual orientation of the member) about the fictitious out-group member to the experimental group and did not provide this information about the fictitious character to the control group. In this experiment, imagined contact results from a pre- and post- questionnaire assisted researchers to consider whether contact frequency altered a participant’s interaction with and reaction to an out-group member.

Actual experience prior to the study and imagined frequency appeared to influence study results. For instance, pre- and post- questionnaire results suggested that participants who had an
actual encounter with a member of the out-group prior to the study and engaged in imagined frequency during the study supported the reduction of anxiety, increased likelihood of communication, and increased trust with that individual. However, Hoffarth and Hodson (2016) noted that imagined contact did not influence or alter perceptions of positive attitudes and behaviors in participants who had previous, real-world interaction with the target group. While imagined contact may be a novel mechanism to explore intergroup communication and group salience, it also supports the implementation of an autogenic technique that emphasizes visualization methods to enhance interprofessional and intergroup communication (Lehmann et al., 2001).

**Relationship Building and Communication**

In addition to group salience, relationship building interventions may offer support for interprofessional communication. One specific type of relationship building intervention used in medicine is mentoring. Peer mentoring provides an outlet for physicians to connect with one another and form a collaborative relationship that fosters personal and professional development (Bryant, Moshavi, Lande, Leary, & Doughty, 2011). Through this relationship, studies indicate several benefits to all parties involved including how acting as an informal resource for education and coaching provides a beneficial way to engage the time-constrained physician, increase socialization, social networking, and career satisfaction (Bryant et al., 2011; Rosenstein, 2012; Sumpter, Gibson, & Porath, 2017; Thomas & Lankau, 2009). Additionally, peer mentoring can be used to improve relationships and communication by pairing physicians of varying levels of expertise and specialties together to enrich the work experience (Bryant et al., 2011; Thomas & Lankau, 2009).
Recognizing a need to improve the experience of residents entering the role of full-time physician, English, Edwards, Genday, Maue, and Zydel (2013) developed an intervention program centered on creating mentor relationships. During the intervention, newly hired physicians were divided into two groups, mentees \((n = 10)\) and non-mentees \((n = 4)\). A physician mentor was assigned to each participant in the mentee group based on organizational competencies, peer recommendation, and previous conflict management success. The mentoring program also identified specific goals to be achieved, such as 1) learning clinical skills to promote patient care, satisfaction, and outcomes, 2) the minimization of risk and potential legal issues, and 3) increasing “professionalism” and the impact on career growth (English et al., 2013, p. 47).

The mentor intervention used face-to-face monthly coaching sessions between mentors and mentees, as well as patient case reviews and meetings with the department chair to review research articles supporting clinical and professional growth. Notably missing from the program is social identity which promotes relationship building interdepartmentally and with other specialties, and communication techniques to foster collaboration. However, English et al. (2013) found that after a year, the mentoring program appeared to reduce the number of risk-related events (e.g., incidents of not following hospital protocols for patient care) for mentored compared to non-mentored physicians. Additionally, study results suggested that mentoring may have improved patient satisfaction scores by almost a half of a percent when compared with non-mentored physicians. Indeed, mentees were not the only ones who received benefits from the program. A qualitative interview with mentors revealed that mentoring enabled them to consider their own position in the healthcare community, including moving from private to employed
practice. While this study provides support for a potential intervention using mentoring, it lacks a focus on social identity which impacts communication and the effect of stress on physicians.

A relationship building technique to mediate communication barriers and potentially reduce stress, centers on the development and use of group goals (Shannon, 2012). One way these group goals are realized is through interventions using checklists or worksheets (Narasimhan, Eisen, Mahoney, Acerra, & Rosen, 2006; Shannon, 2012). Checklists and worksheets, as argued by Narasimhan et al. (2006) and Shannon (2012), support clear communication and expectations of how to function within a group setting, while also reducing the stress associated with not knowing what needs to happen next or identifying responsible parties within the group. Indeed, even the high-profile book by Gawande (2010), which promotes the use of checklists, argues how an organized and structured approach enhances patient care.

Considering checklists or worksheets as an intervention, Narasimhan et al. (2006) developed a worksheet, to post next to a patient’s bed in the intensive care unit (ICU). The worksheet consisted of sections related to orders, tests, medications, nutrition, and several other items for patient care (for an example of this worksheet, see Narasimhan et al., 2006, p. 219). To complete this worksheet, nurses and physicians entered data specific to the patient each day, during morning and evening rounds. The worksheet was removed and disposed of each day and was not retained in the patient’s medical record.

Physician and nurse reactions to using the sheet were captured using a pre- and post-questionnaire. The pre-questionnaire contained five questions, with three questions measuring the participant’s understanding of the worksheet using a 5-point Likert scale (1=Understand Nothing; 5=Completely Understand), one question measuring perceived communication using a 5-point Likert scale (1=Poor; 5=Excellent), and one question measuring intent to use the
worksheet using a Yes or No response. The post-questionnaire contained six questions, with the first question measuring the participant’s understanding of the worksheet using a 5-point Likert scale (1=Understand Nothing; 5=Completely Understand), two questions measuring the effect of goals when using the worksheet through a 4-point Likert scale (1=Nothing; 4=Large Effect), one open-ended question measuring time to complete the worksheet, and two questions measuring effect on patient care and intent to use the worksheet ongoing, both using a Yes or No response. Interestingly, the results suggested that, when using a worksheet, physicians and nurses were better able to understand the goals to care for the patient and there was a reduction in length of stay for the patients. Additionally, Narasimhan et al. (2006) reported that perception of enhanced communication among participants increased as a result of using the worksheet. Connecting to CAT, the results may suggest that sociohistorical and intergroup communication using a mediated format, such as the worksheet, promoted behavior tactics that supported interprofessional communication (Gallois et al., 2005).

Despite the short-term behavior changes from using the worksheet, long-term communication changes were not attained. For instance, when compared to nurses, physicians reported a lower inclination to continue using the worksheet after the study. Because there was no explanation of why the physicians chose not to use the worksheet, the study may have benefited from a qualitative approach to understand the physician’s lower inclination to use the worksheets despite several advantages to patient care. These results provide confounding evidence for including a worksheet as an intervention. A future intervention on checklist or worksheet usage would benefit from a mixed methods approach to better understand participant responses. Additionally, with the advent of the electronic medical record, it would be important to consider whether relationship building is enhanced through checklists and duties outlined in
the technology. Overall, a worksheet, whether digital or paper, may benefit communication, however, the impact on the development of relationships and on reducing stress amongst physicians remains unknown. Additionally, when applying the CATS framework, the physicians and nurses in this study may have been able to control for anticipated stressful situations by using the worksheet as a neutral object that reduced potential communication conflict.

When developing an intervention for relationship building, it is important to also include foundational literature to define key aspects of the topic. One such piece of literature is by Bylund, Peterson, and Cameron (2012) who defines and explores various interpersonal communication theories and how they impact relationship building specific for healthcare workers. As indicated by the CAT framework, interpersonal communication is a core aspect of intergroup communications and sociohistorical awareness development. Additionally, Hewett et al. (2009) studied how intergroup communication and relationship building between physicians impacts quality of patient care. Hewett et al., as previously discussed, used a qualitative methodology to understand the complexities of intergroup communication amongst physicians from varying specialties. As suggested in the results of the study, physicians who maintained better relationships, using accommodative strategies, had better communication and improved quality of care. Finally, Epstein (1999) identified the norms and values, as well as professional knowledge of physicians that may influence intergroup communication and relationship building. These topics are another core aspect of CAT and would be an important inclusion to an intervention addressing varying levels of physician social identity.

**Stress Reduction or Management**

Methods to combat physician stress continue to be studied within the healthcare sector (Beckman et al., 2012; Burton, Burgess, Dean, Koutsopoulou, & Hugh, 2017; Caponnetto, 2017; Burton, Burgess, et al., 2017).
One such method is autogenic skill development for occupational stress coping skill development, which offers physicians a way to reappraise occupational stress and find a way to cope with it to enhance intergroup relationships (Caponnetto et al., 2018). Autogenic skill development (ASD) is the process of conducting self-relaxation exercises to invoke a physiological response to reduce stress and anxiety (Stetter & Kupper, 2002). Primary techniques used in ASD include focusing on the breath or heartbeat, centering attention on the weight of different parts of the body, or observing without concentration on other bodily sensations (Stetter & Kupper, 2002). Aligning with the CATS framework, ASD supports reappraisal of perceived stressful events and interactions (Ursin & Eriksen, 2004). In an intervention developed by Caponnetto et al. (2018), twice a month, the participants \( n = 28 \), 66% female) completed a 180-minute ASD session, with a combined total of eight sessions for the program. Sessions build upon the previous session’s content, beginning with the first week describing stress management and introducing ASD. The second session focused on health outcomes and the use of ASD for cardiac rhythm management. The third and fourth sessions provided participants with an opportunity to manage respiratory function as well as focus on cognitive awareness of the current moment and emotion. The fifth and sixth sessions focused on what the authors call “plexus solaris” and educated participants on methods of problem-solving and beliefs of self and others (Caponnetto et al., 2018, p. 68). Finally, the seventh and eighth sessions encouraged participants to notice and regulate anger through sensations of the forehead and to develop communication skills to assist in emotion regulation. In addition to the formulated sessions, participants were also encouraged to continue using the ASD principles at home throughout the eight sessions. The
authors did not indicate the frequency in which participants tracked or completed this aspect of the intervention.

Several methods were used to measure the results. The authors measured program results through pre- and post-quantitative surveys (e.g., Perceived Stress Scale [PSS]), and found a statistical significance in participants reporting a perceived reduction in stress and reduced risk of burnout. Additionally, the findings suggested that ASD supported an increase in workplace motivation and an improvement in perceived quality of life. These findings align with several other studies that used a form of ASD to intervene on stress in healthcare settings (Beckman et al., 2012; Cohen-Katz et al., 2005; Krasner et al., 2009; Kuhlmann, Bürger, Esser, & Hammerle, 2015; Marx, Strauss, Williamson, Karunavira, & Taravajra, 2014; Shapiro, Astin, Bishop, & Cordova, 2005). Indeed, Shapiro et al. (2005) utilized a form of ASD to intervene on stress with healthcare workers called Mindfulness-Based Stress Reduction (MBSR) which was developed by Kabat-Zinn (1990, 1994). MBSR studies highlight several benefits to stress reduction, even with inconsistent practice (Amutio, Martínez-Taboada, Hermosilla, & Delgado, 2015; de Vibe et al., 2018; Fortney, Luchterhand, Zakletskaia, Zgierska, & Rakel, 2013; Gotink et al., 2015) and as MBSR reduces stress, studies note an improvement in relationships and communication (Fortney et al., 2013; Kelly & Tyson, 2016). A key aspect to consider for an intervention is the use of eight, one-hour modules. The timing of these modules may facilitate completion by reducing the amount of time a physician needs to dedicate to the program. Applying the CATS framework to use of ASD, an intervention that uses mindfulness or meditation may help physicians become aware of how stress influences intergroup communication and ways to mediate stressors.
Mindfulness-based stress reduction sessions offer participants a method to reduce perceived stress. To examine the effects of MBSR, Shapiro et al. (2005) designed an intervention consisting of eight face-to-face sessions lasting two hours each, occurring weekly. Participants were grouped into an experimental ($n = 10$) and a control group ($n = 18$), and the authors noted that the original experimental group was 18, however eight participants dropped out due to extenuating circumstances not associated with the program. The study used four questionnaires to measure participant reaction to the program, including a PSS. The authors also included a qualitative measure as part of the survey instrument to obtain participant feedback about the program. Like Caponnetto et al. (2018), each intervention session built upon the previous one. In addition to basic information related to mindfulness, the sessions also contained information about other forms of ASD and meditation (e.g., body scans and Hatha yoga).

Mindfulness sessions influence more than just stress as well. For example, there was a statistically significant increase in the experimental group’s self-compassion and changes from pre- to post- perceived stress. In fact, Shapiro et al. (2005) noted that the increase in self-compassion appeared to be correlated with a decrease in perceived stress. Additionally, participant responses to the open-ended question on the survey emphasized the improved ability to regulate emotions and become aware of interactions with self and others. While ASD may be beneficial at stress reduction, more research is necessary to investigate coping mechanisms for stress management and the impact on social identity and intergroup communication. Finally, as Shapiro et al. (2005) noted, program duration and time constraint considerations often impact the ability for participation—especially with physicians. Therefore, any intervention developed must account for the limited time that physicians have to participate in the program (de Vibe et al., 2018; Fortney et al., 2013; Kuhlmann et al., 2015).
As with group salience and relationship building, foundational topics on stress, mindfulness, and meditation within an intervention would be ideal to orient the participant to the content. These foundational topics are derived from Pinazo and Breso (2017) and Epstein (1999, 2003), which were previously discussed. The content from these studies highlights the use of a mindfulness program developed for physicians. Additionally, Epstein (1999, 2003) offers explanations of the levels of mindfulness, which would help explain mindfulness to participants. Building upon these explanations, Beckman et al. (2012) examined how to apply mindful communication to the intergroup evaluations that CAT emphasizes. The authors found results consistent with Shapiro et al. (2005), in which mindfulness promoted compassion development and reduced professional isolation through social sharing. According to CAT, the ability to socially share is key to developing future intentions on how to interact with members of the out-group. Finally, Krasner et al. (2009) developed a foundational program on mindful communication developed specifically for physicians. In this program, the authors used key components including presence, how to respond to stress, and reacting to stressful communications to educate participants on how to communicate mindfully and with awareness of intergroup dynamics. Although Krasner et al.’s program duration lasted for approximately a year, there were eight core introductory classes, which is consistent with the MBSR programs, Pinazo and Breso’s (2017) program, and Beckman et al.’s (2012) mindful communication program. With this understanding of the success with using eight modules or sessions, an intervention, whether synchronous or asynchronous, may benefit from using this structure.

**Summary**

This body of literature has established a theoretical foundation to explore interventions for physician social identity to improve intergroup communication, while also addressing role-
related stress. As noted by Klevos and Ezuddin (2018), healthcare organizations continue to struggle with implementing evidence-based interventions to address physician stress and interprofessional communication and relationship building. This intervention literature review provides an examination of various evidence-based interventions to address varying levels of physician social identity, focusing on recognizing how group saliency influences interprofessional communication, relationship building, and stress reduction. Therefore, an intervention would incorporate these three components to help address the problem of practice.

**Proposed Intervention**

A proposed intervention combining autogenic skill development with a communication and relationship building focus enables the researcher to use cognitive activation theory of stress (CATS) and communication accommodation theory (CAT) frameworks to develop an intervention centered on intergroup dynamics and group saliency. This specific type of intervention is called mindful communication (Beckman et al., 2012; Epstein, 1999; Krasner et al., 2009) and promotes intentional attention to group saliency, communication, relationship building, and stress reduction, which makes this type of program a plausible intervention for the problem of practice. Using a mindful communication approach with physicians aims to reduce intergroup communications barriers generated by in-group and out-group dynamics (Beckman et al., 2012).

Mindful communication (MC) programs may contain varying components and length of time to complete. The MC curriculum proposed for the current intervention uses aspects of Krasner et al. (2009) and Pinazo and Breso (2017), while the CAT framework acts as a guide for the courses. Specifically, the length of time for the entire intervention was based on Pinazo and Breso’s (2017) study, which used an 8-week timeframe. Considering the physician population’s
time constraints, the curriculum uses van der Riet et al.’s (2015) method of an hour-long session per week. Several studies noted that attrition was a concern for the physician population, whether due to time constraints or inability to commit to the live sessions. Therefore, in addition to a reduced time for each session length, the intervention uses asynchronous self-paced, online learning modules to deliver the content. Using this delivery method for courses provides participants with three primary values, as identified by Toufaily, Zalan, and Lee (2018). Toufaily et al. (2018) conducted semi-structured interviews with 18 undergraduate and graduate students taking an online or hybrid course. Using emergent coding, the authors developed two categories of values that participants derived from the online/hybrid courses – get and give. Out of the get category, the authors found students who opted to take an online/hybrid course valued functionality (e.g., ease of use, time saving, money saving, etc.), conditions (e.g., availability of programs), and epistemic benefits (e.g., novelty of an online course and advancing knowledge). Understanding that physicians often have severe time constraints, an online, self-paced module may be an advantageous method for delivery.

Developing the curriculum for the intervention comprised of multiple sources to address the impact of group saliency on communication, relationship building, and stress reduction. To begin, the CAT framework guides the eight module topics. Next, the sections within the modules are guided by content from a variety of literature, such as responding to stress and stressful communication (Krasner et al., 2009), mindfulness or awareness techniques (Pinazo & Breso, 2017), professional identity (Haslam & Ellemers, 2011), and intergroup dynamics (Tajfel, 1982). Each literature source offers context and content to construct the session topics and section content within each session topic.
An intervention using MC incorporates several attributes of the studies discussed throughout this literature review. Physician social identity, and the intergroup dynamics associated with it, presents a challenging opportunity to intervene on the problem of practice. However, when focusing on group salience, communication, relationship building, and stress reduction through the frameworks of CATS and CAT, an intervention of mindful communication may enhance the current understanding of how physician and/or clinician social identity impacts patient care. Additionally, this intervention adds to the body of literature and extends current research on the topic, as well as how to design and develop a professional development program for clinicians.
Chapter Four

Intervention Procedure and Program Evaluation Methodology

Introduction

An intervention emphasizing mindful communication ([MC], Beckman et al., 2012; Epstein, 1999; Krasner et al., 2009) focused on the components identified from the literature, such as group saliency, communication, relationship building, and stress reduction amongst clinicians. The intervention aimed to reduce varying levels of social identity amongst physicians. Due to the pandemic, the intervention population expanded from physicians to include all medical clinicians. Although this was not the intended population, it was possible to include other clinicians because the literature review indicated that varying levels of social identity exist across multiple types of clinicians. For instance, these studies include work by Pinazo and Breso (2017), highlighting the coordinated care efforts between primary care physicians and mental health clinicians, Caponnetto et al. (2018) who identified the need for stress reduction in nurses and physicians in the emergency room, and Narasimhan et al. (2006) who used a worksheet to build relationships and improve communication amongst clinicians and physicians caring for patients. Three research questions guided the intervention outcome evaluation: 1) What is the relationship between completing a mindful communication program and physicians’ perceptions of communicating with other physicians from different medical specialties? 2) What is the relationship between completing a mindful communication program and a physicians’ perceptions of workplace stress? 3) What is the association between a mindful communication program and physicians’ perceptions of building relationships with physicians from different medical specialties?
The outcome evaluation questions aim to understand more fully how physicians, and all clinicians, build relationships, communicate, and manage stress in their profession. As discussed in previous chapters, it is thought that how clinicians orient to their profession and interact with peers or colleagues affects how they coordinate care for patients. Therefore, these research questions aim to understand how clinicians completing professional development courses related to communication, relationship building, and stress reduction may orient to and activate the content in their context based on their social identity within their profession.

Extenuating circumstances, derived from the global pandemic of COVID-19 during early 2019 through summer 2021, made recruitment, implementation, and execution of the intervention described below challenging. However, the intervention was deployed and interviews were utilized to gain a deeper understanding about how to intervene on varying levels of social identity across all clinicians. Therefore, the research questions described above are also examined through interview data collection.

**Research Design**

This study employed an emergent mixed methods design (Creswell & Plano Clark, 2018; Lochmiller & Lester, 2017) due to the complexity of the pandemic, as well as the need to explain the intervention data collected using emergent interviews. As indicated previously, the global pandemic limited the number of participants able to complete the MC intervention fully, which resulted in limited number of responses to the pre- and post-surveys. Because of this unexpected occurrence, additional qualitative interviews were added to the intervention. Therefore, as Creswell and Plano Clark (2018) indicate, the emergent mixed methods design aims to add an additional layer of data to understand the population or the study data better, especially when the original method is deemed inadequate. In this design, an intervention was conducted with
participants that captured quantitative and qualitative data associated with the process and outcome evaluation. Once it was identified that intervention was not going to produce data as expected, qualitative data collection using semi-structured interviews with a separate sampling of participants was included to more fully answer the research questions. Qualitative data collection, in the form of one on one interviews, offered an opportunity to understand how varying levels of social identity may even influence participation in and how to create professional development programs for clinicians. The process and outcome evaluation research questions are listed below.

PQ1.) What was the average amount of time participants spent in the sessions and how many sessions were completed?
PQ2.) What are some reasons that prevent participants from completing a professional development program for clinicians?
PQ3.) What delivery method do participants prefer to provide quality professional development for clinicians?

RQ1: How does a clinician’s group salience influence their interprofessional communication with other clinicians?
RQ2: What aspects of a clinician’s social identity influences their perceived stress?
RQ3: How does a clinician’s group salience influence their relationship building with other clinicians?

The logic model outlined in Figure 1.9 describes the resources, activities, and participants needed to conduct the intervention. Additionally, the logic model contains the assumptions about how to implement a professional development program for clinicians and the external factors for
what may prevent or deter clinicians from completing a professional development program. The model was altered to include the external factor of a global pandemic occurring during the time of the intervention and data collection. As indicated previously, the use of an emergent design is intended to understand more fully the outcomes of the program. Clinician audiences from 2019 through 2021 faced an entirely different lived experience than clinicians previously (due to the pandemic). Therefore, interviewing others from the clinician population, who did not complete the intervention, was understood to be beneficial to gain their perspective of how social identity changed and/or influenced participation in a professional development program during a pandemic.

For the inputs and resources section of Figure 1.9, the cost to implement the program was originally $1,500. However, due to the intervention length being increased from an expected six months to nearly 2 years, with a cost of $100 per month for the LearnWorlds subscription, the program funding required increased as well. Additionally, throughout the intervention, the course was approved for contact hours, which also cost a one-time fee of $100. The technology resources were either free or were purchased previously and was not included in the cost of the intervention. An anticipated pipeline of participants was considered a resource to the intervention. Finally, the reporting capabilities of the surveys, as well as the self-paced courses were also identified as inputs of the intervention.

In the outputs section, the activities included identifying the sources of funding, if any other than self, existed. Additionally, the self-paced courses needed to be created which took over six months to complete due to the researcher’s time constraints to work on them. The courses were also uploaded and edited inside LearnWorlds, which also added to the length of time necessary to maintain the subscription. The contact hours were obtained after the
intervention launched and utilized a nurse planner to determine applicability to the nurse population. This nursing continuing professional development activity was approved by the Emergency Nurses Association, an accredited approver by the American Nurses Credentialing Center’s Commission on Accreditation and a disclaimer to reflect this was added to intervention materials. What is not described in the activities is the initial approval of the Institutional Review Board (IRB) application and subsequent amendments made as the intervention evolved. The audience or participants reached was also adjusted to include other clinical professionals other than solely physicians, such as nurses, as the intervention was amended.

The outcomes described below reflect the short, intermediate, and long-term anticipated outcomes or goals of the intervention. The short-term outcomes focus on the participant’s initial orientation to the content and reflections of their daily life. Intermediate outcomes are expected to help the participant begin to realize a reduction in perceived stress and develop patterns to build relationships and communicate with peers. Finally, the long-term outcomes are anticipated to encourage sustained relationship building and communication practices with peers in the in- and out-groups, as well as feel a sense of stress reduction in their overall life, not just at work.
Figure 1.9. Logic model of the mindful communication intervention.

The theory of treatment (see Figure 1.10) explains how the various components of the intervention produce a series of causes, which ultimately leads to the program outcomes. The
components are comprised of the main concepts from communication accommodation theory ([CAT]; Watson & Gallois, 1998). Therefore, these are aligned with foundational information on communication that builds from one module to the next. These modules were intended to cause a series of reactions in the learner, which then leads to further causes in the learner’s context, such as reduction in intergroup biases and discrimination. Each cause is thought to build upon the previous throughout the program to ultimately influence anticipated program outcomes related to variances in social identity, such as an increase in intergroup communication and interprofessional relationship building, and a reduction in perceived stress.

![Figure 1.10. Theory of treatment for the mindful communication intervention.](image)

**Process Evaluation**

Process evaluation offers researchers an opportunity to gauge how well the study or intervention reaches the desired audience and/or how well the study design has been implemented (Rossi, Lipsey, & Freeman, 2004). To conduct a process evaluation, it is important to include evaluation research questions that act to guide the investigation. As indicated above,
three research questions evaluated how participants experienced a professional development program for clinicians described as a mindful communication (MC) program. These questions helped the researcher to ascertain whether the program was implemented appropriately, whether the target audience was reached, and how clinicians prefer to interact with a professional development program focused on communication, relationship building, and stress reduction.

The process evaluation also examined the program’s implementation effectiveness and helped determine if any alterations were needed for future iterations (Rossi et al., 2004). For instance, future iterations might include the alteration of length of time to complete the module, how many modules are included in the program, or recruitment strategies. As discussed previously about the emergent mixed methods design, inclusion of interview questions allowed for a more complete understanding and participant explanation of how to design a professional development program for clinicians and added understanding to the quantitative and qualitative data collected from the MC intervention.

**Project implementation.** For all module topics in the study, project implementation was successful if participants completed all eight self-paced course modules on MC. Each module built upon the previous, which emphasized the need to complete each one in sequential order. If the participant stopped at any point in the program without completing all eight modules, the intended outcomes likely did not occur. As Stufflebeam (2003) noted, a summative evaluation of how participants are moving through the program can assist with determining whether the program is following the process outlined prior to implementation. Specifically, the goal was that participants would spend at least an hour in each of the eight sessions, that all eight MC self-paced modules were developed and published, that all participants completed the eight MC
modules, and participants rated the modules as satisfactory to supporting MC strategies and behaviors in the workplace and beyond.

**Context.** The context or location where the participants took the modules was varied and diverse due to the study being conducted online through a web-based learning management system (LMS). Baranowski and Stables (2000) indicated that variance of participant context may influence the effects of the program, thus potentially interfering with fidelity. However, the process evaluation offered an opportunity to understand the effects of generalizability on these diverse contexts through the participant summative satisfaction survey indicated previously. Within the satisfaction survey (see Appendix G), contextual preference questions were asked, such as whether the participant believed the self-paced, online method to be suitable for the MC intervention. Collecting these data directly post-program enhanced the likelihood of survey completion, and facilitated data extraction and analysis.

**Fidelity of implementation: Participant responsiveness.** Participant responsiveness in this study is defined as participants completing all eight self-paced sessions. Participant completion of the session content in its entirety was expected to enhance program fidelity and facilitate the realization of intended program outcomes. Dusenbury, Brannigan, Falco, and Hansen (2003) suggested that even self-disclosure using a survey may be beneficial to collecting data about how the participant responded to the program. Indeed, the logic model refers to evaluative opportunities to collect participant responsiveness, such as pre- and post-program perceived stress scale (PSS) survey, CAT survey, satisfaction surveys, and in-session reflections. These measures are described in detail under the Methods section. The satisfaction survey was used to measure participant feedback related to applicability of the module content and, thus, provided insights into how successful the program was implemented based on the level of
participant responsiveness to these survey items. The interview questions added to this study contributed to a greater understanding of how potential participants perceived the professional development program design and their perceptions of completing a program similar to the one created for this study.

**Reasons for Program Non-Completion**

Conducting an online intervention could present challenges to participant responsiveness and engagement. As Baranowski and Stables (2000) suggested, obstacles in the process evaluation can highlight the opportunities to engage or attract target audiences in different ways. Additionally, if there are issues related to getting participants to engage with the program, it may explain inconsistent processes in other components of the program, such as implementation or context. As noted in the logic model, identifying an LMS to host the modules was crucial to ensuring the implementation and delivery of the program. Baranowski and Stables (2000) suggested using participant surveys to evaluate reasons that prevented program completion and ask for feedback on what was challenging about participating in the online course. Due to the challenges mentioned previously with recruitment, enrollment, and program completion, interviews were conducted with participants who had not gone through the sessions.

**Process evaluation indicators.** To evaluate the process of the mindful communication (MC) intervention, three potential indicators were identified as session completion rates (dose), potential non-completion explanations (adherence), and program delivery method evaluation (quality). These indicators aligned with the logic model (Appendix F) and theory of treatment (Appendix I) by understanding how many participants enrolled in the sessions and completed the eight modules, as well as reasons for not completing, and an evaluation of the program. Indicators were monitored on a weekly basis during the study as enrollment to the courses was
rolling and based upon when participants signed up. Indicators were collected using online programs (e.g., the LMS or online survey), as well as semi-structured interviews.

**Session completion rates.** What was the average amount of time participants spent in the sessions and how many sessions were completed? This indicator used weekly and cumulative tracking of participant enrollment into and completion of the sessions through the LMS reporting platform. Session completion tracking aligned with the logic model and theory of treatment by gleaning benefits of participation from one session to the next in sequence. When the intervention was complete, session completion tracking also provided information about attrition rates throughout the intervention to determine where the study design could be improved.

**Reasons for not completing the program.** What are some reasons that prevent participants from completing a professional development program for clinicians? This indicator assessed challenges that may prevent participants from completing sessions or the entire intervention. It also offered an opportunity to consider potential deviation from the intervention as it was designed, for instance what was or was not useful for participants.

**Program delivery method evaluation.** What delivery method do participants prefer to provide quality professional development for clinicians? Feedback on the delivery method preference, in relation to providing quality professional development to clinicians, was collected through an end of program survey and semi-structured interviews with non-intervention participants (i.e., individuals that did not go through the MC intervention). The post-intervention survey contained qualitative and quantitative questions. Responses were collected through Google Forms.
Outcome Evaluation

The initial design for the study was a pre-post design using naturally occurring groups of medical specialties who complete the intervention (Mertens, 2018). Short-term outcomes of the eight modules presented are understanding of intergroup dynamics related to communication, relationship building, and awareness of stress-reduction techniques. Intermediate outcomes include lowered group saliency for improved relationship building and communication. Long-term outcomes are expected to show increased interprofessional communication and reduction of perceived stress. A list of outcomes is provided in the logic model and theory of treatment (see Appendix F and I). As indicated previously, this method was deemed to be inadequate to supplying sufficient data due to low enrollment, therefore, the emergent design was used to answer the research questions more fully.

To examine the intergroup communication variables of group saliency and relationship building, quantitative and qualitative data were collected using the Watson and Gallois (1998) communication accommodation theory (CAT) goals survey. A full list of survey items can be found in Appendix H and participants of the Mindful Communication (MC) intervention completed the questionnaire after the program ended and the survey allowed participants to rate whether the goals of communication, as indicated in the five subscales of the survey, were applied in their own contexts. Additionally, under each quantitative item, an open-ended response option for participants to share considerations, thoughts, and feelings related to the goals and how the goals manifested in their contexts, enabled participants to expound upon why they chose a particular rating. The quantitative and qualitative data collected through the CAT survey was analyzed to produce a more holistic picture of participant reactions to intergroup communication.
Additionally, quantitative data relating to perceived stress, using the PSS, was collected before and after the program, as pre- and post-tests. This enabled the researcher to measure the perceived stress of the participant before and after the program, which was anticipated to be reduced by the end of the program. Additionally, participants had the opportunity to provide feedback on perceived stress at the end of each module using an open-ended question (e.g., *How would you describe your current level of stress related to interprofessional relationships?*). Interviews helped to explain the pre-post PSS survey data as well. The emergent mixed methods design allowed the researcher to understand participant perspectives while comparing with qualitative data from the open-ended questions and reflections from each module to understand emergent themes or patterns (Sandelowski, 2000; Teddlie & Tashakkori, 2003).

**Method**

The research method describes the steps taken to implement the study. In this study, the method was influenced and, ultimately, altered throughout due to the global pandemic which significantly impacted the healthcare system and research projects across the United States. As such, the method described in subsequent pages details additional steps that were not originally anticipated but were added to respond to the changing situation.

**Participants**

*Mindful communication intervention participants.* Initially, only physicians were identified as the population to participate in the intervention. However, due to low enrollment and completion, the intervention was revised and approved to include all clinicians. As indicated at the beginning of the chapter, adding additional clinicians to the study was a practical alternative given that other clinicians, such as nurses and physician associates, may have varying levels of social identity and utilize group salience when interacting with other healthcare
members as well. Therefore, the group expanded to recruit registered nurses, physicians, nurse practitioners, and patient technicians. Participants included clinicians who worked in a direct patient care setting, as well as those who were no longer performing direct patient care (e.g., clinical faculty). Verification of criteria was completed through self-disclosure in a demographics survey via Google Forms.

**Interview participants.** Interviews with non-program participants also provided key insights into the lived experiences of physicians and other clinicians who may use professional development programs to intervene on group saliency and/or interprofessional dynamics. Throughout subsequent pages and chapters, individuals who participated in the interviews are labeled interviewees or respondents, interchangeably. Individuals who participated in the Mindful Communication intervention (even those who did not finish the program) are referred to as participants.

The site for the Mindful Communication intervention was an online learning management system (LMS) platform called LearnWorlds that participants logged into and accessed the surveys and modules. The interviews were conducted via phone or through the meeting platform Zoom. The interviews were not recorded and only notes were taken. There was no comparison or control group for this study.

**Instrumentation or Measures**

Returning to the conceptual framework of networked EST (Neal & Neal, 2013), the impact of social identity (macro) on relationship building, engagement and communication (micro, meso), physician identity formation (meso), and contextual factors influencing physician social identity development (exo, chrono) continue to offer a framework to explore the intervention variables. As indicated previously, the intervention was intended to measure several
variables. The independent variable for this intervention is group saliency and dependent variables are intergroup communication, relationship building, and perceived stress. To measure these variables, several instruments were used throughout the study. The constructs from the conceptual framework being measured are displayed in Figure 1.11. In addition to the variables measured, data related to participant demographics, course completion status, and program satisfaction were collected.

**Participant demographics.** A demographics survey titled Mindful Communication Program Participant Demographic Survey was completed by participants when entering the course and/or prior to the interview. Containing five questions, the instrument collected participant demographics such as age (free text), gender (*male, female, prefer not to say*), medical specialty area or profession (i.e., cardiologist, nephrologist, family medicine, etc.), geographic area where they practice (*urban, suburban, and rural*) and a 4-digit unique identifier. This instrument was used for the MC intervention and the interviews. This instrument can be found in Appendix L. The demographics survey was adapted from the needs assessment demographics survey and an item to collect geographic location was included to understand the distribution of the participants.

**Learning management system data.** The LMS hosted the learning modules so that when participants entered a course, the LMS collected data that indicated time of log in, length of time to complete the module, time of log out or completion, and the cumulative number of participants engaged in the program.
Figure 1.11. Conceptual framework with measures associated to the constructs.

Satisfaction survey. At the end of the program, participants completed a satisfaction survey. The researcher designed the satisfaction survey and the questions were derived from prior satisfaction surveys conducted within her professional organizational context with clinicians. This survey was used to rate the usefulness of the modules, the applicability to daily activities and intergroup communications, as well as obtain participant attitudes about using a self-paced method instead of live, face-to-face meetings. This survey enabled the researcher to identify any barriers participants encountered throughout the program, and understand participant opinion on the delivery method used. The satisfaction survey contains five questions; three questions used a 5-point Likert scale and two questions were open text to collect qualitative feedback (see Appendix G for full protocols). Due to the questions being derived from a non-research reference, no validity or reliability check were used to test the instrument.
**Perceived stress scale (PSS) survey.** To examine how the program influenced the dependent variable of perceived stress levels, a perceived stress scale (PSS) was used to measure these levels pre- and post-intervention. Cohen, Kamarck, and Mermelstein (1983) designed this 14-item instrument which uses a 5-point Likert scale from one (*never*) to five (*very often*). Of the 14 items, seven are reverse coded. The PSS includes questions such as “In the last month, how often have you felt nervous and stressed?” and “In the last month, how often have you felt that things were going your way?” Reliability for the scale was measured through a Cronbach’s alpha analysis, and correlation coefficients ranged between .84 - .86 (Cohen et al., 1983). The authors measured concurrent validity through correlation tests and found $r$ values between .52 to .76 and $p$ values between .001 to .05, indicating moderate to high concurrent validity. A list of items and corresponding research questions are located in Table 14 (see Appendix H for a full list of protocols and questions). Several studies, including those noted in the intervention literature review successfully used this scale to measure perceived stress amongst clinicians (Caponnetto et al., 2018; Fortney et al., 2013; Kang, Gray, & Dovidio, 2014; Shapiro et al., 2005), which made it ideal for this study.

**Goals of communication accommodation theory (CAT) survey.** To measure the remaining two dependent variables of relationship building and communication, a survey adapted from Watson and Gallois (1998) was used. The survey contains 12 items and is broken into four subscales 1) attending to the relationship needs of the other person (addressing relationship building), 2) attending to the emotional needs (addressing communication), 3) attention to the other physician’s communicative competence (addressing communication), and 4) attention to the role relationship (addressing relationship building). The survey was adapted from its original form that focused on physician-patient relationships, not physician-physician
relationships. Therefore, I altered questions to remove patient and inserted physician to orient the questions to a physician-colleague focus when necessary. This or other alterations by any prior researchers have not been found in a review of the literature. Therefore, the use of this survey for this purpose extends the research in the field by exploring alternative uses for the instrument. A list of items from this survey associated with research question is located in Table 14 (a full list of survey items is located in Appendix H). Unfortunately, neither Watson and Gallois (1998), nor other studies using this survey methodology (Ahmed & Bates, 2016; Rittenour et al., 2018) indicate any reliability or validity data. Participants used a 6-point Likert scale from one (not important at all) to six (very important) to rate their attention to the interpersonal or intergroup dynamics about the communication. The survey was conducted pre- and post-completion of the intervention. Based on the results of the survey, the researcher measured how much participants’ beliefs about group saliency related to communication with other physicians and how important they believed it was for them to build relationships with those individuals and groups.

**Open-ended questions.** In addition to the quantitative instruments, open-ended questions were also used to collect data within the surveys. A full discussion of research design and reasoning for these data collection protocols is discussed below. Collection of these data enabled the researcher to better understand participants’ perceived reasons for not completing the program and may assist with revisions to future iterations.

Within the PSS survey, three open-ended questions were included after the initial 14 (see Appendix H for full protocols). These questions intended to capture how physicians felt about their current level of stress with interprofessional relationships, their role as a physician, and the stress they experience with colleagues as a result of the care coordination process. All responses were captured through open text fields and the researcher was able to use these data to better
understand responses associated with the PSS, as well as physician thoughts on stress related to their role. As with the primary set of PSS items, these open-ended questions were presented pre- and post-program completion to measure perceived stress levels before and after the program.

Table 14

*Research Question and Instrument Matrix*

<table>
<thead>
<tr>
<th>Research Question</th>
<th>Instrument</th>
</tr>
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</table>
| 1) How does a clinician’s group salience influence their interprofessional communication with other clinicians? | Communication Survey Protocol (Beckman et al., 2012) (Items 4 and 5)  
12 Goals of Communication Accommodation Theory (CAT) Survey (adapted from Watson & Gallois, 1998) (open ended response options after each survey item) |
| 2) What aspects of a clinician’s social identity influences their perceived stress? | Stress Scale (PSS) Survey (Cohen, Kamarck, & Mermelstein, 1983) (Items 1-14) |
|                                                                                                      | PSS open-ended questions include:                                           |
|                                                                                                      | 1. How would you describe your current level of stress related to interprofessional relationships? |
|                                                                                                      | 2. How would you describe stress related to your current role?             |
|                                                                                                      | 3. How would you describe the stress of care coordination, or interacting with other physicians to mediate care for a patient? |
| 3) How does a clinician’s group salience influence their relationship building with other clinicians? | 12 Goals of Communication Accommodation Theory (CAT) Survey (adapted from Watson & Gallois, 1998)  
Attend to relationship needs subscale (relationship building) (Items 1-4)  
Attending to the emotional needs subscale (group saliency) (Items 5-6)  
Attention to the other physician’s communicative competence subscale (group saliency) (Items 7-8)  
Attend to Role Relationship subscale (relationship building) (Items 9-12) |
To measure the relationship between the mindful communication program on physicians’ perceptions of their behavior, two qualitative open-response questions were used. The two questions were derived from Beckman et al.’s (2012) 12-item survey conducted post-program on communication. The questions were selected based on the applicability to the intervention, and the remaining 10 questions from the survey were not deemed relevant and therefore deleted. The first question used (In what ways did the Mindful Communication program influence how you behaved outside of the workplace, such as self-care, work–home balance, etc.?) examined physician experience with the program and how it influenced behavior. The second question (In what ways did the Mindful Communication program affect how you interact or relate with patients, peers, or others?) examined the experience with the program and how it affected physician interactions. Both questions aimed to understand the physician experience of the MC intervention and the influence it had on communication.

Finally, the CAT survey has open text boxes throughout the survey after each of the 12 Likert items where participants expounded upon their selected rating (see Appendix H for full protocols). Although providing this additional information was not mandatory, it was highly encouraged. Collecting this additional rating feedback equipped the researcher with more information about how participants experienced group saliency and relationship building once the program was over. Additionally, it was useful for participants to use this feedback section as a reflection opportunity to share more about how the program did or did not influence these experiences.

**Interviews.** Semi-structured interview protocols were used to collect data from participants who did not enroll in or complete the Mindful Communication program. Interviews consisted of five questions and interviews averaged 45 minutes. The questions were developed
based on conversations with clinicians at the researcher’s professional context, within their professional network, and through a reflection on the researcher’s journal over the course of the MC intervention. The interview questions were:

Q1. When thinking about a professional development program for clinicians focused on three core components of communication, relationship building, and stress reduction, what type of content do you find to be most useful?

A. As a follow-up, would there be different types of content for each component?

Q2. How do you think that content would best be relayed to a clinician audience?

Q3. Recruitment for the existing self-paced course modules has been challenging with the clinician population. What do you think could be causing that? How to mediate that challenge?

Q4. The original Mindful Communication program contained aspects of mindfulness. In your experience, what else could be a benefit for clinicians to help them activate concepts like communication, relationship building, and stress reduction?

Q5. Think of someone who you’ve had a challenging professional relationship with. How have you experienced relationship building, communication, and stress when it comes to managing a professional relationship with someone you find to be difficult or challenging?

A. As a follow-up, I’m interested to know the relationship of this challenging person to you. Was it a colleague in the same specialty or department, or from a different specialty or department?

As noted above, the semi-structured interview protocol offered the researcher and interviewee to have a dialogue and ask follow-up questions as necessary. No other researchers were included in the data collection; therefore, no inter-rater reliability could be checked.
Procedure

Procedures listed in this section describe the steps taken to recruit participants, develop and publish the content for the intervention, and the data collection and analysis phases of the study. This section is intended to provide a review of how the study was conducted.

**Participant recruitment.** The population for this study initially included physicians. However, due to challenges in recruitment of this population, the study included all clinicians (e.g., physician, nurse, dialysis technician, nurse practitioner, etc.). Participants were excluded if they were not able to understand English or if they were not a clinician. The study used a convenience sampling approach and approximately 6,000 participants were invited to participate in the Mindful Communication (MC) intervention. Participant names and email addresses were collected through open source access on the employer’s website, which included mostly physician faculty at medical schools in the United States. Additionally, more than 60 nursing school alumni programs and professional nursing associations were contacted to relay the study recruitment information to the nurse alumni or association members. Participants were recruited through email solicitation and social media. Recruitment materials for the Mindful Communication program are located in Appendix J. Recruitment began in the end of summer in 2020 and continued through fall 2021. After the initial email, a weekly email reminder was sent to potential participants for a total of four weeks to encourage participation. If the participant did not complete a module, an email reminder was manually sent from the LMS.

Participants for the interviews were recruited in July 2021 from the existing physician email addresses collected for the initial intervention, as well as through personal networks and the nursing association contacts. Therefore, a convenience sample approach was also used for the interviewee recruitment as well. A total of approximately 2,080 clinicians were emailed a request
to participate in a one-on-one interview. Interview recruitment materials can be found in Appendix K. Some of these clinicians were part of the initial recruitment efforts, others were part of the researcher’s personal network, and others were contacts generated from the nurse alumni and professional association email communications.

**Intervention.** The core components of communication accommodation provide a structure for an 8-week mindful communication (MC) intervention, with one hour-long, self-paced online module occurring per week (Pinazo & Breso, 2017; van der Riet et al., 2015), resulting in a total of eight hours of content. In these modules, there was a focus on utilizing communication accommodation theory (CAT) framework (that also relate to the intervention pre-post surveys) and meditation to address stress and incorporate cognitive activation theory of stress (CATS). Therefore, modules contained foundational information related to CAT framework and a secondary component that provided meditation instruction. Based on the literature reviewed, multiple studies comprised the session content and addressed acting on the three dependent variables of the study—developing and identifying group saliency, building relationships, and reducing stress. Information from various sources was blended together to develop the components of this intervention. Currently, no one else had used this specific intervention. However, as discussed in the literature review, van der Riet et al. (2015) found hour-long modules to be successful for participants of a mindfulness course. Each session, described below, contained key research studies that addressed the mindfulness topic. A full review of the course modules, definitions, objectives, and studies contributing to the module content is reviewed below and a table of these modules can also be found in Appendix E. Additionally, depicted in Table 15, is an outline of the sessions, session titles, and alignment to research questions.
### Table 15

*Session Alignment with Research Questions and Variables*

<table>
<thead>
<tr>
<th>Session Number</th>
<th>Session Title</th>
<th>Research Question (RQ) and Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Session 1</td>
<td>Introduction to Intergroup Communication</td>
<td>RQs: Two and Three; Variables: Group saliency, relationship building, and stress reduction</td>
</tr>
<tr>
<td>Session 2</td>
<td>Orientation to Intergroup Communication – Part 1</td>
<td>RQs: Two and Three; Variables: Relationship building and stress reduction</td>
</tr>
<tr>
<td>Session 3</td>
<td>Orientation to Intergroup Communication – Part 2</td>
<td>RQs: Two and Three; Variables: Group saliency, relationship building, and stress reduction</td>
</tr>
<tr>
<td>Session 4</td>
<td>Developing Intergroup Communication Strategies</td>
<td>RQs: Two and Three; Variables: Group saliency, relationship building, and stress reduction</td>
</tr>
<tr>
<td>Session 5</td>
<td>Promoting Intergroup Communication through Behavior – Part 1</td>
<td>RQs: Two and Three; Variables: Group saliency and stress reduction</td>
</tr>
<tr>
<td>Session 6</td>
<td>Promoting Intergroup Communication through Behavior – Part 2</td>
<td>RQs: Two and Three; Variables: Group saliency, relationship building, and stress reduction</td>
</tr>
<tr>
<td>Session 7</td>
<td>Utilizing Intergroup Communication Strategies</td>
<td>RQs: Two and Three; Variables: Group saliency and stress reduction</td>
</tr>
<tr>
<td>Session 8</td>
<td>Future Development of Intergroup Communication Strategies</td>
<td>RQs: One, Two, and Three; Variables: Group saliency, relationship building, and stress reduction</td>
</tr>
</tbody>
</table>

*Note. RQs indicates research questions. Research questions are:*  
RQ1: How does a clinician’s group salience influence their interprofessional communication with other clinicians?  
RQ2: What aspects of a clinician’s social identity influences their perceived stress?  
RQ3: How does a clinician’s group salience influence their relationship building with other clinicians?  

**Session 1.** The first session introduced the sociohistorical impact that prior and continuing intergroup dynamics and stress have on intergroup communication (Gallois et al., 2005; Watson & Gallois, 1998). The learning objectives of this session were to develop a sociohistorical awareness through education about and defining intergroup dynamic history
(Tajfel, 1982), understand professional (societal) norms and values (e.g., stress) (Haslam & Ellemers, 2011), and interpersonal history. Additionally, this session introduced participants to mindfulness and/or autogenic skill development and contained a short meditation (Epstein, 1999, 2003; Krasner et al., 2009; Pinazo & Breso, 2017). The hour-long session was split into two 30-minute segments, one focusing on the sociohistorical impact of intergroup dynamics, which included scenarios, definitions, interactive video for participants to select items on the screen.

Additionally, this session included two reflections to assist in activation of the content to the participant’s life. The first reflection question was, “Throughout this series, you’ll be offered several opportunities to reflect on the content you just viewed. You can either use the notepad in this course, or a separate notepad, computer, or other option of your choosing to journal in during this time. Here, we offer 5 minutes of journaling time, but feel free to extend that time as you see fit. In this journaling exercise, consider your professional norms and values. That is, what do you consider normal and what do you value? Consider how these [norms and values] impact your communication and the relationships you develop.” The second reflection asked, “In this reflection opportunity, I’m going to ask you to think about a time when you experienced a communication that didn’t go as planned or wasn’t exactly how you wanted to communicate with the other person. This can be a personal or professional experience; however, I’d encourage you think about a professional time with a colleague. In this reflection, think about specific feelings that you felt or were expressed. Consider how the interaction made you feel. Was there any historical communication that influenced the interaction? What norms or values presented during the experience now that you can look back and evaluate it? Take 5 or more minutes to journal.” The remaining 30-minutes introduced mindfulness through a video and provided two
guided meditations resulting in a total of 11-minutes for participants to engage in. Session one addressed aspects of group saliency, relationship building, and stress reduction.

**Session 2.** The second session oriented participants to interpersonal communication and present awareness techniques (e.g., noticing the current moment without judgement). Learning objectives for this session included discovering awareness of emotions and the effect of emotions on interpersonal relationships (Pinazo & Breso, 2017), naming interpersonal communication strategies (Bylund et al., 2012), and being able to explain what interpersonal communication meant to them (Gallois et al., 2005). The hour-long session was split into two 30-minute segments, the first focused on the interpersonal communication topic, which included video and animated scenarios, personal examples, reflections, interactive infographics, definitions, and knowledge transfer checks. The reflection for this session asked participants to, “Think about a time when you felt emotions while communicating with a peer? How did those emotions impact the ability to communicate with one another? What would you do differently now?” The remaining 30-minutes contained a mindfulness and/or autogenic skill development section to help participants apply the concepts of the module to their daily life and provided two meditation recordings totaling 15-minutes. This session focused on the variables of relationship building and stress reduction.

**Session 3.** Session three focused on participants learning more about what intergroup communication is and ways they may experience it in daily life. This session also provided a continuation of present awareness strategies to reinforce the concepts and learning objectives from session two. After this session, participants were expected to be able to explain what intergroup communication is (Gallois et al., 2005) and compare intergroup communication strategies and knowledge with that of interpersonal communication strategies and knowledge
(Hewett et al., 2009). For the mindfulness section, learners were expected to recognize awareness of people’s resistance against using mindfulness techniques (Pinazo & Breso, 2017).

The hour-long session was split into two 30-minute segments, the first focused on the intergroup communication topic, which included scenarios, definitions, reflections, and knowledge transfer checks in the form of interactive trivia. There were two reflection questions in this session. The first question asked participants to, “Think of an interaction with an out-group member (when your in-group membership became the most salient). How did your group membership affect the communication? What coping strategies did you develop?” The second reflection question states, “Make an action plan for ways to change intergroup contact. Provide 4 actionable steps you will take in the next week to improve intergroup communications with an out-group member.

Consider each of the four strategies we just discussed: 1. Learning about the out-group 2. Changing your own behavior (becoming more aware) 3. Generating affective ties (i.e., becoming more emotionally invested in the outgroup members) 4. Reappraising the ingroup association.”

The remainder of the course contained a mindfulness and/or autogenic skill development section on becoming aware of resistance to mindfulness. There was an introduction to the mindfulness topic and how it related to the session content, and then two meditations which created a total of 22 minutes of guided meditation for participants to engage in. This module focused on all three dependent variables identified.

**Session 4.** Session four allowed participants to begin utilizing and practicing MC within their contexts to develop accommodative (i.e., adaptive, such as considering the jargon or specialty-specific language used outside of the specialty group) practices for intergroup and interpersonal communications. At the end of session four, participants were expected to be able to explain and construct accommodative practices to improve interpersonal and intergroup
communications (Gallois et al., 2005; Hewett et al., 2009), as well as apply the mindfulness communication principles associated with previous sessions (e.g., intergroup communication, awareness techniques, etc.). The beginning of this session reviewed previous session knowledge transfer through a no-stakes knowledge check that asked participants five questions related to the terms and concepts presented in sessions one through three. The next group of modules in the session focused on development of accommodative practices, which included scenarios, interactive activities, videos, and games to outline the session concepts, definitions, reflections, writing activities to help participants outline their accommodative strategies, and a weekly challenge to activate concepts to real-life. The reflection for this session asked participants to, “Describe a tenuous intergroup communication experience. What accommodative strategies did you use, or would you have used in that situation? If the same encounter happened again, what would you do differently?” The remaining 30-minutes contained an introduction to the mindfulness and/or autogenic skill development for the session on learning how to listen to the body and decipher reactions to experiences (Pinazo & Breso, 2017) and provided two guided meditations for participants to engage in that totaled 25 minutes. Similar to session three, this session focused on all three dependent variables.

**Session 5.** In session five, participants learned behavior approaches to promote intergroup communications related to aversion or collusion. Session five taught participants how to recognize aversion or collusion among group members, enact purposeful and mindful communications with intergroups, acknowledge intergroup and interpersonal dynamics, and reconstruct how professional norms and values influenced communications. Learning objectives for this session were to introduce and explain what aversion and collusion is during intergroup communications (Gallois et al., 2005), examining group saliency and how it develops (Pettigrew,
The hour-long session was split into two 30-minute segments, the first focused on the collusion and aversion topic (including how group saliency influences this), which included animated scenarios, definitions, interactive activities to reinforce knowledge transfer and understanding, and a reflection. The reflection asked “During last week’s mindful communication challenge, describe how group saliency may have influenced the communication. Did you use any aversion or collusion tactics? What were they?” The remaining 30-minutes contained an introduction to the mindfulness and/or autogenic skill development topic in this session focused on the ability to practice the awareness of emotions and their effects (Pinazo & Breso, 2017) and two guided meditations. This session focused on the variables of group saliency and stress reduction.

**Session 6.** In a continuation of the topic from session five, session six emphasized behavior tactics to promote intergroup communication that related to interprofessional norms and values. Learning objectives for session six were explaining and reconstructing what professional norms and values meant in the participant’s context (Epstein, 1999; Haslam & Ellemers, 2011). The hour-long session was split into two 30-minute segments, the first focused on the interprofessional norms and values strategies topic, which included interactive video, and definitions. The final 30-minutes contained an introduction to the mindfulness and/or autogenic skill development content in this session related to the ability to discover an attitude of compassion and gratitude through mindfulness (Pinazo & Breso, 2017) and provided one 28-minute guided meditation video for participants to watch and integrate the concepts from the session. This session focused on the variables of group saliency, relationship building, and stress reduction.
**Session 7.** Session seven encouraged participants to identify and reflect on how perceptual changes or alterations using mindful communications impacted relationships and collaboration, as well as how stress was perceived. This session focused on enhancing participant’s awareness of intergroup history and dynamics to enhance appreciation for mindful communications, and consider the impact of intergroup bias or stereotyping. Learning objectives for this session included participants being able to generate an explanation of how perceptions or attributions of intergroup strategies affected communication through reflective activities in the module (Gallois et al., 2005), and construction of strategies to reduce intergroup bias and/or stereotyping (Kang et al., 2014; Pettigrew, 1998). The hour-long session was split into two segments, the first focused on identifying and reflecting on perceptual changes from using mindful communications, which included scenarios, reflection, and interactive knowledge transfer checks as a game to activate the learning. The reflection for this session asked, “What perceptual changes have you experienced over the last several weeks using mindful communication with colleagues?” The remaining 35-minutes contained an introduction overview of the mindfulness and/or autogenic skill development for this session on the application of the awareness of judgements and mind control to daily situations (Pinazo & Breso, 2017) and provided two guided meditations totaling 33-minutes for participants to practice this content. This session focused on the variables of group saliency and stress reduction.

**Session 8.** In the final session, participants were encouraged to discover how the program may lead to changes within their professional context and provided several opportunities to check knowledge transfer and activate learning of concepts from the entire program. This was accomplished through an evaluation of future intentions to engage in intergroup communications and realize a reduction in perceived stress. Meaning, the participant reflected on how their
intergroup communications has changed throughout the eight weeks, and explicitly state how they intended to engage in intergroup communications after the program ends. Session eight taught participants to appraise successful mindful communications with medical professionals with other specialties and consider a continuation of mindful communication with all intergroup members. Specifically, learning objectives for this final session included an explanation of what evaluation and future intentions are for the participant in their professional context (Gallois et al., 2005), an appraisal of the various strategies to employ that may promote future intentions to engage in intergroup communications (Hewett et al., 2009), and the application of how to evaluate for future interactions using mindful communications when involved in intergroup dynamics (Beckman et al., 2012). The hour-long session was split into two 30-minute segments, the first focused on methods to evaluate intergroup relations and develop future intentions, which included an interactive knowledge check consisting of 10 multiple choice questions. The session also contained interactive video, three reflection opportunities, and a certificate of completion once all of the sessions were marked complete. The first reflection asked participants, “Think about a time over the last week that you engaged in mindful communication, what were your intentions going into that situation? What would you do differently next time?” The second reflection requested participants, “Spend the next 10 minutes reflecting on how you can promote better intergroup communications. For me, this meant thinking about all of the concepts learned throughout this program and simply allowing myself the space to become aware. I spent a week really actively engaging in what I wanted my future intentions to be, just observed my interactions with others, and asked myself during stressful moments, what can I learn from this situation? What would I gain if I engage in mindful communication?” The final reflection of the session asked, “How have you changed your communication or stress over the last 8 weeks?”
Because mindful communications is a more iterative cycle of becoming aware, adjusting, and implementing communication strategies, how do you foresee using the principles in this program to influence future interactions? Thinking back to the last session, what types of perceptual changes do you want to see in your interactions? Recently, a phrase that helps me is to question myself on what adjectives I would currently use to describe my communications with someone, and then ask myself again, what adjectives would describe how I want my interactions to be?”

The final 30-minutes closed the program out, and included a brief orientation to the mindfulness content in this session on personal responsibility encouraging participants to prepare for future interactions (Pinazo & Breso, 2017). This final meditation within the course provided a 22-minute guided meditation for participants to practice this content. This session focused on all three dependent variables.

Throughout the eight sessions, participants learned how the reciprocal effects of identity and/or group saliency impact intergroup communications, relationship building, and stress reduction, and vice versa. Upon completion of the program, participants were expected to be able to communicate more effectively across specialties and experience a reduction in perceived stress. An awareness of identity saliency, through professional or occupational associations, is expected to increase effective communication and relationship building across specialties and a reduction in stress, which may enable an enriched coordination of care experience for participants ultimately benefiting patient care. Therefore, the aim of the program is to provide professional development education for physicians and clinicians on how to adapt to the changing dynamics of interprofessional settings (meso/macro) to promote an adaptation to personal social identity (micro). This is accomplished through the CAT and CATS frameworks
which provide foundational information on the aspects of communication, relationship building, and stress reduction.

**Data collection.** Data were collected throughout and after the intervention concluded and as indicated in Figure 1.12 and Table 16, the timeframe for data collection varied depending on enrollment into and completion of the self-paced modules. However, the program was launched in September 2020 and concluded in July 2021 when interviews were conducted. Data for process of implementation and proximal outcomes was collected during this time frame.
Figure 1.12. Mindful communication intervention and interview data collection timeline. The timeline features a start to finish data collection review, including the email reminders sent to participants.
Table 16

Mindful Communication Data Collection Timeline Components

<table>
<thead>
<tr>
<th>Pre-Intervention</th>
<th>During Intervention</th>
<th>Post-Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potential participant data</td>
<td>Qualitative Reflections</td>
<td>Perceived Stress Scale (PSS) Survey</td>
</tr>
<tr>
<td>(extracted from open-source websites)</td>
<td></td>
<td>Communication Accommodation Theory (CAT) Survey</td>
</tr>
<tr>
<td>Perceived Stress Scale (PSS)</td>
<td></td>
<td>Post-program Satisfaction Survey</td>
</tr>
<tr>
<td>Survey</td>
<td></td>
<td>Semi-structured Interviews</td>
</tr>
<tr>
<td>Demographics</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Process of implementation data collection.** Data related to the fidelity of the program implementation were collected through the satisfaction survey and interviews at the end of the program, as indicated in Figure 1.12. Additionally, LMS data related to length of time to complete each module were important to collect due to an expected timeframe of about one-hour to complete each module. Therefore, participant tracking from enrollment to completion or attrition of the modules was collected from the time the participant entered the program. Additionally, participants were sent a weekly reminder to complete the session after one week if they had not completed it, with a subsequent reminder the second week. Consistent with the logic model, the self-paced online modules allowed the proximal targets (e.g., clinicians) to engage with content when convenient for them, which Baranowski and Stables (2000) indicated is important when considering the process to capture the intended audience.

**Proximal outcomes data collection.** Proximal outcomes, as identified in the logic model (see Figure 1.9) and theory of treatment (see Figure 1.10), included recognition of intergroup dynamics and group saliency, improved relationship building, and a decrease in perceived stress. Data were collected during a post-program CAT survey to understand participant outcomes.
related to group saliency and relationship building. Additionally, participant data about perceived stress levels, using the PSS, were collected prior to beginning and at the end of the program. Interviews also provide a qualitative source of data to understand the proximal outcomes and examine the legitimacy of the theory of treatment.

**Data analysis.** This study used an emergent mixed-methods design (Creswell & Plano Clark, 2018; Lochmiller & Lester, 2017) to answer the research questions. Therefore, several data analysis points use quantitative and qualitative data to develop a robust understanding of intervention session completion, reasons for clinician completion or non-completion in professional development programs, and the association between clinicians who have interest in completing a mindful communication program and how they relate to communication, relationship building, and stress reduction. Any personal information that would identify a participant was removed prior to conducting any analysis or retaining these data on the server.

**Quantitative analysis.** Quantitative analysis included descriptive statistics for the LMS data, as well as the demographics, PSS, and CAT surveys. For the PSS, a dependent t-test was expected to be used to measure change in participant scores from pre- to post-program. For reverse coded items on the PSS, those items were recoded using statistical software. All statistical analysis was completed using the statistical software SPSS or in Microsoft Excel data processor.

**Qualitative analysis.** The Communication Survey Protocol, PSS, CAT, and satisfaction surveys, all had open-ended questions to gain further insights into participant ratings and perceptions. There were also free-text reflection sections in several modules of the program which were reviewed and compared to the interview responses. Finally, interviews contained five structured questions with the opportunity to expand or respond to interviewee questions as a
dialogue. As specified in the process and outcome evaluation matrices (see Appendices G and H), the PSS open-text responses first used a priori and emergent coding, thematic analysis, and then pattern development to analyze participant responses. A priori codes found in the literature included feeling overwhelmed, fragmented coordinated care, poor communication, stress from administrative tasks, and challenging interpersonal relationships. Emergent coding was also used to understand participant responses. For the CAT survey, open response data were coded using a priori coding based on the five subscales (e.g., attending to the relationship needs of the other person, attending to the emotional needs, attention to the other physician’s communicative competence), while allowing for emergent coding to occur as well. From there, themes were developed, and then patterns based on those themes were identified. Finally, the satisfaction surveys followed the same coding procedures as the PSS open-text responses, starting with emergent coding, then moving to themes, and finally, patterns (Creswell & Plano Clark, 2018).

Interviews added to the study were analyzed using a combination of the a priori codes from the open response items form the PSS and CAT surveys, as well as codes from literature pertaining to physician professional development program design. These codes included time restraints, get versus give, and ease of use/accessibility. Analysis of the interviews also used emergent coding to develop new codes, themes, and patterns which were outlined and examined via four iterations (van Ingen, Alvarez McHatton, & Vomvoridi-Ivanovic, 2016).

**Mixed-methods analysis.** Some of these data were collected concurrently while participants completed the modules and some was obtained via interviews from individuals who did not go through the intervention program. To begin the mixed-methods analysis, the quantitative data collected from the surveys was reviewed against the themes derived from the interview responses. In addition to the interviews and survey data, as depicted in Table 17,
participant reflections were reviewed and appraised for clarification of the survey results and interview responses. Using this method provided the researcher with contextual narratives that allowed for further understanding about participant experiences in a professional development program using mindfulness, relationship building and communication components that would not be possible by only analyzing the quantitative data as collected. The inclusion of the interviews into the data collection procedures provided the researcher with additional data that helped explain the quantitative data, or lack thereof.

Table 17

*Data Collection and Integration Analysis for Program and Non-Program Participants*

<table>
<thead>
<tr>
<th>Mindful Communication Program Participants</th>
<th>Interview Respondents (Non-program Participants)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantitative</td>
<td>Qualitative</td>
</tr>
<tr>
<td>PSS Pre-Post Surveys</td>
<td>Open-ended questions on PSS, CAT, and Satisfaction Surveys</td>
</tr>
<tr>
<td>CAT Pre-Post Surveys</td>
<td>Semi-structured protocol (5 Questions, 45-minutes)</td>
</tr>
<tr>
<td>Post-Program Satisfaction Survey</td>
<td>Interview data and reflections used to validate QUAN survey data</td>
</tr>
<tr>
<td>Mindful Communication Program Demographics Survey</td>
<td>Demographics Survey</td>
</tr>
</tbody>
</table>

**Summary matrix.** Summary matrices of the process and outcome evaluations is available in Appendix G and H. These matrices highlight the alignment between process and outcome research questions as well as the data collection, analysis, and variables outlined in this section.
Strengths and Limitations

Strengths of the Research Design

A primary strength of this study design is that data can be collected efficiently before (as a pre-program tests), during (as participant reflection data), and after (post-program tests, interviews) the program to minimize length of program and resource allocation (Creswell & Plano Clark, 2018). Additionally, each component of the quantitative and qualitative data collection can be analyzed independently, as well as transformed and integrated to provide a more holistic picture of participant reactions to the program. The emergent design enabled the researcher to pivot from a mostly quantitative design of using pre-post surveys to include interviews. Because the pandemic presented challenges for the recruitment, enrollment, and data collection aspects of the MC intervention, an emergent design became necessary to understand the current experience of clinicians during this unprecedented time in medical history. Using an emergent design, clinicians were able to explain how they experienced the professional development landscape during the pandemic and ways to mediate challenges associated with professional development design specific to clinicians.

Limitations of design. A primary limitation of using this design, centers on the sample inconsistency and unequal group sizes related to varying medical specialties and clinician types (e.g., physicians, nurse practitioners, patient care technicians, nurses) that self-enrolled in the program or participated in the interviews. As noted by Creswell and Plano Clark (2018), this variation often makes it difficult to measure effects across the program, within specific groups, or generalize the findings or relate to a broad population, such as all clinicians. Additionally, self-selection into the program may bias the results of the study in favor of participants who were already more interested in mindfulness-based approaches or were already using these approaches
to improve communication, relationship building, and/or perceived stress. Another potential limitation of the study was that each module was only one hour long, which may not have been enough time for participants to realize an effect on communication or intergroup dynamics. Another limitation is that the individuals who participated in the interview may not represent the broader clinician population, which makes it difficult to draw inferences or generalizations to the broader population or individual subgroups of clinicians (e.g., nurse practitioners may desire a specific type of professional development design compared to physicians). Finally, this design neither allows inferences about how the contextual impacts of the setting in which the participant took the self-paced courses influenced their responses (e.g., using a mobile phone versus computer), nor if the interviewees’ context influenced their responses. Although the pandemic was not anticipated, it may have also been a limitation from a contextual and chronological perspective. For instance, the participants recruited and participating in the Mindful Communication program at the beginning of the pandemic may have had a different perspective on time allocation and professional development education than those interviewed later into the pandemic.

Further, this design, when not using a control group, inhibits inferences about differences between treatment and non-treatment effects among the population. Indeed, considering how the potential for a varying or low sample size often yields inconsistent results is an important aspect to consider related to this design as well. For instance, an initial recruitment estimate was a total sample of 10 physicians. However, after conducting a power analysis, it was revealed that if a desired effect size of 0.5 is to be achieved (Wilson, n.d.), a total of 34 participants will need to complete the program. Therefore, as noted by Shadish, Cook, and Campbell (2002), it is important to consider the sample size and how a study design using quantitative and qualitative...
data may impact the ability to make valid inferences about the results. Overall, the emergent mixed methods design provides a beneficial method to explore intergroup communication and perceived stress among physicians.
Chapter Five
Findings and Discussion

The intervention took place between September 2020 and July 2021. During this period, a global pandemic gripped the world, resulting in widespread healthcare crises as thousands of people were admitted to the intensive care units at hospitals due to the COVID-19 virus. As such, the healthcare community felt unprecedented strains, stress, and burden. Therefore, this intervention, initially aimed at only physicians, evolved drastically over the course of those 18 months. The researcher was not able to conduct any research within their professional context and, therefore, consequently lost the ability to collect data from their organizational setting where their position and engagement with the topic was well-known. This loss of positionality may have led to an out-group member status with less credibility with physicians and other clinicians than originally anticipated, resulting in lower rates of completion or hesitancy amongst the population to participate in the study.

Participants of the interviews (n = 19) included 42% (n = 8) males, with an average age of male participants being 63 years old, and females being 52 years old. Based on self-disclosure, there was one dialysis technician, nine nurses or nurse practitioners, and nine physicians. The physicians identified in a variety of specialties including family medicine, internal medicine, pathology, and oncology. All interviewees, except one who was retired, were considered employees of an organization or company who received a paycheck directly. The one that was retired was previously employed by a company as well. The geographic location for these interview participants varied as well, with nine listing an urban setting, eight listing suburban, and a single listing for both rural and urban/suburban respectively.
Of participants who enrolled in and completed the demographics survey for the Mindful Communication program \((n = 23)\), 69\% were female \((n = 16)\) with an average age of 45 years of age for females, 59 years old for males. Only 26\% of participants listed themselves as nurses or nurse practitioners \((n = 6)\). All other participants identified as physicians of various specialties, including cardiology, family medicine, nephrology, neurology, gastroenterology, internal medicine, pediatrics, urology, and obstetrics and gynecology. Also, all were considered employees receiving a paycheck from the company or organization directly. Geographic location varied for participants, with 10 identifying as practicing in urban settings, nine identifying as suburban, and four identifying as either rural or a combination of rural, urban, and suburban. Of note, only one participant completed the entire Mindful Communication program. The remainder of participants abandoned their progress.

**Process of Implementation**

In September of 2020, eight self-paced modules making up the Mindful Communication program were published on an online, cloud-based LMS called LearnWorlds. In addition to the eight modules, the informed consent, demographics survey, the CAT and PSS pre- and post-surveys, and post-program satisfaction survey were published as well to the same platform. Data were extracted from the LMS and exported to a Microsoft Excel spreadsheet. A review of how these data were collected and used can be found in the process evaluation matrix in Appendix G.

Participants created a login to access the courses and then were taken to the main landing page for the sessions (see Figure 1.13). Participants were instructed to complete the informed consent, then the pre-surveys, and then begin Session 1 and move through the remainder of the curriculum. Once participants completed all eight sessions, they were instructed to complete the post-surveys. Upon completion of the entire program, a certificate of completion was awarded.
As indicated in Chapter 4, the sessions included several interactive features that the researcher designed to increase engagement with the content and promote installation of the material for the participant’s use after the session ended. Examples of interactive features the researcher created were in-module reflection prompts and free-text space to type (Figure 1.14), games that allowed participants to recall specific concepts or terminology (Figure 1.15), interactive infographics that offered participants the ability to self-learn topics or reinforce examples of terminology (Figure 1.16), and an interactive mindfulness lesson using audio, video, and/or text (Figure 1.17).
Figure 1.13. Mindful communication intervention landing page.
Figure 1.14. Mindful communication reflection prompt example.
Figure 1.15. Mindful communication program game example.
Figure 1.16. Mindful communication program interactive infographic example.
Figure 1.17. Mindful communication program interactive mindfulness activity.
The sessions and each section of content within the session were intended to be taken in sequence, so the concepts built upon one another. A gating mechanism within the LMS was put into place to restrict participants from jumping from one session or section in non-sequential order. However, due to LMS limitations and participant usability challenges, gating that prevented participants from completing sessions or sections of content out of order was removed.

In February of 2021, a year after the original program launched for physician participants and more than 6,000 had been sent recruitment invitations, it became apparent that physicians, as a participant group, were not going to provide the desired number of participants for the study. Therefore, the IRB was amended to allow for recruitment to all clinicians, not solely physicians. All survey instruments and the consent were updated as well to reflect the new population being recruited. All the intervention implementation expectations remained consistent for all clinicians entering this new phase of the study. Over the course of the next two months, a request to award continuing education contact hours for nurses was submitted to the Emergency Nurses Association. Upon approval from this accrediting body and a new IRB approval, three and a half contact hours were now able to be awarded for any nurse who completed the entire program. These continuing education hours aimed to incentivize nurses to complete the study.

The next three months recruitment efforts focused on the nursing population, including emails to professional nursing associations, direct clinician contact in the personal network, and nursing school alumni chapters across the country. Despite these efforts, enrollment was stagnant and completion of the Mindful Communication program was non-existent. After another amendment to the IRB in July of 2021, a new data collection phase allowed for interviews to be conducted with clinicians including people who were in some cases invited to participate in the Mindful Communication intervention but did not respond.
An interview protocol comprised of five questions was used to interview 19 respondents during late July of 2021. None of these respondents had been through the Mindful Communication intervention. These interviews lasted on average about 45 minutes and were semi-structured with specific questions being asked of participants. The protocol was developed based on the research questions and the desire to understand the clinician population’s experience with varying levels of social identity influencing professional development education focused on relationship building, communication, and stress reduction. The protocol was also discussed with two other clinicians in the researcher’s personal network to determine understandability of the questions. Clarifications of the questions were needed by some participants; however, the protocol was understood by most interviewees. The terms interviewee and respondent refer to the group of individuals who comprised the interviews and are used interchangeably throughout this chapter. This terminology allowed for variation of terminology when describing the interview process and responses.

Although the intervention did not produce data as originally intended, it was a unique time to study the healthcare field overall, given the constraints of the pandemic. Therefore, the findings below offer an examination of how varying levels of social identity influences professional development education for healthcare professionals. This study also examines how group salience may impact the process to design, develop, and present information for varying levels of social identity amongst clinicians. Indeed, the timing of the intervention and data collection for this study may be beneficial to understand more fully how contextual factors also influence group salience and consumption of professional development education content. For instance, if these data had been collected prior to February 2020, online, virtual, or remote learning may not have been as prevalent then as it is today. This highlights the evolution of
professional development education for healthcare professionals today and offers a window into how future learning for this population may need to continue to evolve to meet these learners where they are at in their learning journey.

Findings

Process Evaluation Questions

1) What was the average amount of time participants spent in the sessions and how many sessions were completed?

The Mindful Communication program intervention did not have the intended number of participants complete all eight sessions. Per the LMS completion reports, one physician completed the entire program, and to prevent detection or identification of that individual, their individual results are only presented when used as aggregated data. As the target audience evolved throughout the course of the recruitment phase, there were a total of 32 clinicians who completed the informed consent and pre-surveys including 21 (PSS) and 23 (CAT). A review of how attrition impacted the completion rates is shown in Table 18.

Table 18

<table>
<thead>
<tr>
<th>Session Number</th>
<th>Count of Participants</th>
<th>% of Session Completed</th>
<th>Avg Time in Session (h:min:sec)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Session 1</td>
<td>19</td>
<td>71.0</td>
<td>39:41 (n = 18)</td>
</tr>
<tr>
<td>Session 2</td>
<td>5</td>
<td>97.8</td>
<td>26:41</td>
</tr>
<tr>
<td>Session 3</td>
<td>4</td>
<td>94.4</td>
<td>41:45 (n = 3)</td>
</tr>
<tr>
<td>Session 4</td>
<td>3</td>
<td>61.5</td>
<td>14:22</td>
</tr>
<tr>
<td>Session 5</td>
<td>2</td>
<td>100.0</td>
<td>32:30 (n = 1)</td>
</tr>
<tr>
<td>Session 6</td>
<td>2</td>
<td>91.7</td>
<td>37:54 (n = 1)</td>
</tr>
<tr>
<td>Session 7</td>
<td>2</td>
<td>56.3</td>
<td>47:44</td>
</tr>
<tr>
<td>Session 8</td>
<td>1</td>
<td>100.0</td>
<td>3:54:53</td>
</tr>
</tbody>
</table>
Note. An adjusted N in the average length of time in session column reflects the number of participants completing content in the LMS.

As indicated by these data in the table, further attrition occurred after the pre-surveys were completed. Additionally, completion of the sessions varied widely. With the highest session completion being session five (100%) and eight (100%) and lowest being sessions seven (56.3%) and four (61.5%). The average amount of time it took to complete each session displayed in the table above excludes four outliers who had times far above the expected amount of time to complete the session. For instance, the LMS recorded one participant spending 34 hours in a session, which indicates that the session was started in the LMS, then abandoned and never closed or finished. This is reflected by an adjusted N in the average length of time in session column. The barriers for the online, LMS program participant engagement was when content was not able to be located, the system did not work as intended, users had difficulty accessing or locating modules, or the content was not engaging.

2) What are some reasons that prevent participants from completing a professional development program for clinicians?

Although attrition-related data were not able to be collected due to non-response from participants, there were insights from the interviews that provided some potential reasons why participants were not able to complete all eight modules. As discussed in chapter four, the interviews were added to the study after the initial planning phase, given the data collection concerns of program non-completions. The interviews yielded significant insights to the process and outcome evaluations. Using van Ingen, Alvarez McHatton, and Vomvoridi-Ivanovic’s (2016) iterative process to review interview data, Figure 1.17 provides a review of the four iterations completed during the coding analysis process.
Figure 1.18. Interview coding analysis iterations.

During the first iteration of coding, the researcher read all 19 interview transcripts and notes to gain perspective of the interviews and to confirm or disconfirm the use of the a priori codes. The a priori codes were useful to triangulate data from interviews with the pre-survey data from the intervention. During the second iteration of coding, a code book was built in Microsoft Excel. Each response of each interview question was then read again and coded according to either an a priori code or an emergent code. As indicated in Figure 1.18, there were 68 emergent

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codes generated from this analysis. In the third iteration of coding, developed categories based on groupings of codes. There were no additional researchers to compare or gain intercoder reliability, which resulted in only four iterations of coding analysis. The fourth iteration produced 10 patterns from the previous iterations of analysis. Based on the patterns developed (see Table 19 for full outline of patterns/themes developed) in the fourth iteration of the coding, four key themes emerged that helped to explain clinician reasons for not completing a professional development program with communication, relationship building, and stress reduction as the core components. These themes create the basis for answering this process evaluation question.

To answer this process question, interviewees were asked, “Recruitment for the existing self-paced course modules has been challenging with the clinician population. What do you think could be causing that? How to mediate that challenge?” This question directly targets the intended participation, enrollment in, and completion of a professional development program related to concepts of communication, relationship building, and stress reduction.

Table 19  
*Interview Themes from Fourth Iteration of Coding*

<table>
<thead>
<tr>
<th>Stress Orientation Factors (e.g., internal vs. external)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Controllable vs. Non-controllable</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Learned Response/Outcome Expectation</td>
</tr>
<tr>
<td>Personal</td>
</tr>
<tr>
<td>Interpersonal</td>
</tr>
<tr>
<td>Intergroup</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Time Consideration</td>
</tr>
<tr>
<td>• Audience specific</td>
</tr>
<tr>
<td>• Benefit of attendance</td>
</tr>
<tr>
<td>• Method of Delivery</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Applicability/Transferability to Real-Life</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Accessibility</td>
</tr>
<tr>
<td>• Content type &amp; Delivery Method choice</td>
</tr>
</tbody>
</table>
Time Considerations. The theme of time considerations came from two emergent coding categories identified: 1) time constraints of the participant and, 2) time requirements to complete the program. Both are discussed further below. Of note, time considerations were coded in the interviews more than any other aspect related to overall professional development education, other than applicability and transferability, with a total of 84 references throughout the interviews (n = 19).

Time constraints of the participant. Of the initial recruitment requests to participate in the Mindful Communication intervention, six out of 21 physicians responded with a declination citing time constraints as the reason (e.g., “We are in full COVID support mode”, “I’m way too busy to participate”, “it is all I can do to honor my existing commitments”, “Unfortunately, this comes at a bad time because of the attacks by the virus”. Of the interview requests that responded with a declination and reason (n = 25), five stated they could not participate in the interviews due to time constraints (e.g., “too many other commitments”, “don’t have the bandwidth”, “packed schedule”).

During the interviews, respondents stated that the COVID-19 pandemic exacerbated time constraints across the healthcare field for any medical clinician to participate in any professional development activities. Further, the clinicians in the interviews stated that competing priorities at work, home, and personal lives impact the ability to fully dedicate time to professional development education, regardless of the delivery method or modality of content. For instance, one respondent lamented about barriers they faced to complete professional development,
The barrier for me was because I didn't have capacity in my life. My job is taking up time, [there is] stress out in the world. Everything is a little crazy. It's hard to be able to add more to the plate. Hard to add more.

Other interview respondents discussed courses they intended to complete and noted how life gets in the way and there is a true struggle between work and home life balance, and adding professional development education on top of those two obligations, “When I signed up for the course, I had every intention of doing the course and everything. Life gets in the way”. Another interviewee detailed the conflict between work and home life balance and adding an extracurricular professional development education on top of those two, “Time to come off of work, you're exhausted, you have intention to complete it, but then you get absorbed into all your other duties at home. By the time you think about it it's 3 days later”. One other interviewee discussed the currency with which physicians, in particular, consider when assessing whether to attend a professional development education, “Time. There are two currencies for physicians, time and money. Time is a non-renewable currency”. Of note, the PSS pre-survey conducted as part of the Mindful Communication (MC) program asked participants to rate their frequency on a 5-point Likert scale (1=never and 5=very often), “In the last month, how often have you been able to control the way you spend your time?” Of the participants who responded (n = 21), 62% responded as occasionally or sometimes being able to control the way they spend their time. These data were contextualized by another interviewee who commented on how clinicians struggle to control the resource of time during the pandemic,

Everyone is trying to get out, at least until the Delta variant, so people wanting to be out and being summer, so if that's a factor of what's happening right now. Of course, the other thing is, a lot of clinicians now are on 12-hour shifts, which means a 14-hour workday.
The only time they can do anything is on their day off, and people are very protective of their time off. Understandably so. Depending how they arrange/plan their time, what else is pulling at them.

**Time requirements to complete the program.** Similar to the review of responses from initial physician recruitment declinations, one physician in the original group asked how much time it would take to complete the sessions and surveys. Additionally, with a nearly 99% attrition rate of the Mindful Communication program, it was insightful to hear from interviewees that the length of time it takes to complete a program or piece of content may influence the likelihood of overall program enrollment and/or completion. After explaining the length of time to complete the MC intervention one interviewee opined that their suspicion for low enrollment and completion rates was that many clinicians would feel they are already proficient in the topic areas of communication, relationship building, and stress reduction. Thus, they would not be inclined to spend an additional eight hours to complete this type of education, even with incentives like professional learning contact hours.

My suspicion is the underlying issue is that because of the amount of time required, I believe you're preaching to the choir who already have a significant professional interest in delivery of communication skills. An average clinician who is in practice is not going to want to take 8 hours of time to do this, even if it comes with CEUs [continuing education units].

Another clinician considered the length of time associated with the MC intervention and stated,

Way too long, too many modules and too long for each. When I see stuff like that, I see 40 minutes and it'll probably take me an hour. If I see 8 [hours], I see I'm going to be
there for an entire day. I have over 20 modules I have to do for the university and 10 for the department of public health. I have a ton of that stuff already. The appeal of more, even if it's interesting, that much length of content would be a problem.

When thinking about professional development programs overall, this interview respondent stated, “I think people are overwhelmed and busy. The topics would need to be smaller, more focused. Time commitment needs to be pretty small given most people are overwhelmed”.

Overall, there were 84 coding points from the interviews associated with the category of time, which encompassed all aspects of participant perceptions about time to complete the program, time of individual content, time related to employer supported professional development, how much time clinicians have to complete the education, or timing of when the program was deployed (e.g., during COVID pandemic).

**Accessibility or ease of use.** Throughout both recruitment periods of the MC intervention, prospective or actual participants raised concerns related to the ease of using the online, cloud-based LMS, LearnWorlds, or the Google-based surveys and informed consent. In total, five communications with non-program participants related to difficulty using the technology used to deliver the program content. One participant sent a personal correspondence outside of the LMS and indicated they abandoned the program due to inability to navigate the LMS. Another prospective participant when completing the surveys was unable to log in, which then had to be reset to allow another attempt. Additionally, as mentioned previously, the LMS presented limitations early on with gating functionality to restrict participants from accessing content out of sequential order. Because of this limitation, several participants were impacted with an inability to navigate to the next module on their own time, as well as an untested feature.
of the LMS required the administrator to mark a grade on a reflection. This also prevented
participants from moving forward as expected. One participant notified me to say, “I didn't get to
finish Session 1 because it's stuck on Reflection and says my grade will be given to me soon. I
did it last weekend and it won't let me finish session 1 until that's done”. This was important
feedback that required adjustments and removal of the gating mechanisms that forced the
grading requirement.

The feedback from the participants who went through the intervention was contextualized
by the interviews. Ease of use (i.e., how easy it is to navigate through the content in the
modules), accessibility of the content (e.g., was the content accessible when they tried to
complete it), ease of accessing the content (i.e., getting an email with the information about the
program or trying to bookmark the website to return to it later), or usability of the software (i.e.,
was the actual LMS easy to use) to deploy the education was coded a total of 34 times
throughout the interview process. For instance, interviewees described ease of use as, being able
to consume the content when and where they need it, as well as quickly discerning and distilling
information or concepts from the education to put into action.

Quick videos that people can watch during lunch. 5-10 minutes, have to break it down so
staff can break it down at a short time. Whenever they leave the work settings, the
likelihood of them logging in to do a CE [continuing education] activity is very small.

This was the sentiment from another interviewee who challenged what easy access means
and ways to mediate it. Convenience was often brought up as a determining factor of selecting a
type of professional development to consume. For instance, respondents suggested online
learning as a convenient method to acquire information, “I like online materials that people can
access on their convenience” and “I like the online courses, I like those. Because you can get
through them at your own pace. Issues with those is that it's hard to retrieve that information. Not like I'm taking notes”. Based on the previous quotation, online courses highlight a potential detractor for some learners who like to refer back to content or notes.

Accessibility of the content led other interviewees to note how they prefer to or be provided access to content, “I like saving videos and refer to them again”, “I didn't save it to my favorites but while I'm doing the course, that would be a convenient thing to do. Sometimes keep the tab open”, “I like the little one-pagers that you get in your work email, but then if there's no follow-through, or things brought up at staff meetings, it falls to the way side”. Although less discussed or referred to during the interviews, geography and accessibility was brought up as a potential obstacle for some, “…highlighting the geography, can address equity and accessibility”.

When considering ease of accessing content, many interviewees noted the volume of continuing or professional education available to clinicians. Other respondents cited their place of employment having a library of content or education to partake in virtually or in-person, with one interviewee commenting on in-person education as removing a barrier and that, “Some people feel like that is beneficial, day off [of work], worked through a group exercise”. While others indicated that time allowances from their employers would make it easier to take professional development education. One interviewee stated ease of access to professional development would be beneficial if the employer provided time within the workweek to complete it and it did not disrupt personal time. Ideally, it would replace the time spent with patients. As this theme from the interviews and data collected from the initial recruitment efforts, as well as MC intervention participants indicated, time is a serious consideration for many clinicians when contemplating joining any professional development program.
Applicability/transferability to real-life. Interviewees contended that applicability to or transferability to real-life was a key factor in activation of content, as well as the benefit to an educational program that could reduce barriers for clinician enrollment in and completion of a professional development program focused on communication, relationship building, and stress reduction. In fact, applicability/transferability was coded most often than any other for process evaluation-related interview questions, with a total of 88 references to this aspect of education. Therefore, the interviews provided rich contextual and experiential insights from the interviewees that were not obtained through the pre-surveys in the MC intervention.

The codes that make up this theme or category consisted of practicing techniques learned in the education, use of scenarios and role play within the education, transfer to real life or daily encounters/tasks to transfer knowledge, the education providing interactivity with the audience, and mnemonics or keywords that can be remembered post-class. Based on interviewee responses, this theme was considered a learning activation mechanism for participants of a professional development to take what they learned in the education program and apply or practice it to be a worthwhile use of time. The interview question asked of respondents was, “The original Mindful Communication program contained aspects of mindfulness. In your experience, what else could be a benefit for clinicians to help them activate education or professional development concepts like communication, relationship building, and stress reduction? For example, how have you experienced activation of concepts after a professional development course?” To respond to this, one interviewee responded,

The work doesn't stop when you're in a retreat, if someone could take care of the work that I wasn't doing in the retreat, you would have my undivided attention. Hopefully it’s not a lot of fluff and the presentation is good. Get to the point, give me the tools, practice
I need. Have it be meaningful. If all those conditions are met. I'd be out for a day. Usually it's a punishment in some ways. Now all the work that I couldn't do that day, it's been built up. Now I have to find an additional 8 hours over my nights and weekends to make up for time for time I took off to do the day retreat. Coming from the retreat, maybe there's 1-2 communication tips that I actually employ, but could have gotten from a podcast.

Not only does the response above highlight the concept of content needing to be applicable, but it also relates back to time constraints as a barrier. Another respondent considered the method of delivery by stating, “…educating and having them [an audience member] experience it might want to make them learn it more. Very hands on and in-person; if you can experience it and experience either benefits, you can take away and apply to practice”. Yet another described how transferability to other settings may also reduce barriers to taking a professional development education, such as if the content could translate not only from peer-to-peer, but also patient-clinician relationships. In this regard, an interviewee noted,

Clinicians work with patients, we see patients all day long. Practicing the concepts [of communication, relationship building, and stress reduction]. If we're working with patients all day long, then working with the patient is the way we could practice it throughout the day. If it became, somehow, that mindfulness and stress reduction became a part of each interaction with the patients.

Of interest, one respondent did indicate that, specific to physicians, tying the education to promoting practice profitability may reduce a barrier to self-selecting a professional development program, “The point is that you can change professional behavior related to billing and financial
affairs, physicians would accept invitations related to business/financial relationship, more likely to do that than communication with patients”.

This concept also aligns with the theme of transferability to real-life that does not relate to clinician to clinician or clinician to patient communication and relationship building, or stress reduction. Whether the program components are comprised of relationship building, communication, stress reduction, or something else entirely, the theme of applicability and transferability to real-life may be an important area to consider when designing a program.

**Enhancement to social capital.** Although the concept of enhancing social capital did not come up during the literature review for the intervention, it was a broad theme that emerged during analysis of the interviews and could be related to the development of accommodative practices as discussed in communication accommodation theory ([CAT]; Gallois, Ogay, & Giles, 2005). Social capital is defined as “investment in social relations with expected returns” (Lin, Cook, & Burt, 2001, p. 6). Nested within this theme were the categories and codes of employer support, get versus give (i.e., the benefit of taking the education versus the cost), incentives to attend/complete education, and group education versus individual education settings, to name a few. Ultimately, this theme emphasizes the clinician’s need to feel or believe that the investment of their time, money, or attention will provide a return that enhances their networks, personal or professional growth, personal mental health, and/or increase other resources for them. A pointed response from one respondent was, “If I'm taking 8 hours of online time for a module, I better have a good return on investment”. Indeed, clinicians may all view the return on investment or benefit to them differently. For one clinician respondent, the ability to interact with others in a group setting was a benefit for them, stating,
Training was done half-day on Saturday, it was motivating. I got the credits, wasn't stuck sitting at home. It was a group activity and social event so that you aren't the only one being "tortured". Some others like to do it alone. If others are giving up their personal time to do the credits or take the courses, I feel like I can do it too. Can we meet at a restaurant and have a glass wine and get credit? Sounds great! Take the drudgery out of it.

Other clinicians interviewed indicated that the value proposition should be considered as well. For instance, one respondent stated, “I think it depends on where the participant places value or emphasis. They have to see the value in it”. Along similar lines, another respondent highlighted the value to them as, “…[the] value of online learning has to be such that I consider it absolutely critical for my profession…I want to save thousands of dollars so, I'm taking a course for myself”. Finally, another physician respondent explained how value is not just a concept that relates to being nice, but exemplifies the benefits to patient care as well, stating,

[L]ink it [education] to hard outcomes that physicians’ value and it's not just about being nice people. Also, the stress reduction, if you have a successful team who is well partnered with others, your work is easier and goes more smoothly. Physicians are slow to come to the realization that high functioning teams do the best care.

This last statement exemplifies that concept of social capital in the benefit to the team, department, and overall organization to provide better patient care.

Another way to look at the theme of enhancing social capital is to consider it from the vantage point of the employer or administrators at the organization who develop, manage, or implement education. For instance, more than 20 references in the interviews related to employer support or requirements for education relating to communication, relationship building, and stress reduction. Therefore, if the employer is viewing their employees (i.e., clinicians) as social
capital to enhance the image, network, or collegial relationships within the organization, interviewees contended that this was a method to reduce barriers to completion. In one response related to this concept, an interviewee stated,

You have to get someone/employers engaged in that activity. If the employer doesn't support it the staff won't attend. If the employer doesn't support it in some way shape or form, if they don't get a financial benefit from doing it, if there's nothing mentioned in the annual evaluation--the employer doesn’t have a connection--they're not required to do it.

However, one respondent noted about the rejuvenating effects to remain loyal to an organization that offers support and advocates for employees to attend professional development education. They stated an appreciation for the ability to share their ideas and ways to improve with peers at various levels when returning from a conference.

In my experience, attending conferences, organizational conferences has been instrumental and keeps me wanting to stay with the company. You're tired, but you're refreshed and rejuvenated [upon return]. Whatever situation you're at in your local market, I can share my feelings, ideas, how to improve, not just with my direct manager, but at the national level.

Another interviewee introduced the concept of how leadership can perpetuate or support education and reduce the barrier of attendance,

It's all about the time, there needs to be something to reward. Doesn't have to be money. Maybe there's some other way to get rewarded. Free CME [continuing medical education], but that costs money. But that can be powerful too, they could benefit from that. You need to find a key informant, key leaders, head of a department to say it's really cool and they need to do it. Advocate for the program, leading the other people. A clinic
leader, could be the clinic managers to bring it up in the leadership meeting, diffuse the information to other people. That helps people take it.

While explaining that clinicians want to be rewarded, whether that is money, contact hours, or something else. They also agreed with the interviewee quoted above that it would be beneficial to gain a key informant in an organization to be an advocate for the education and the benefit of for that audience.

Additional interviewees echoed this sentiment, with another stating, “I also think about what is the benefit of a referral form a nurse manager or teammate, identifying teammates who are experiencing difficulty in those categories. Telling the teammate to take advantage of the program, encouraging them to”. And another explained how their organization also uses education as an expectation for compliance and how they have come to view the time commitment as negligible to the benefit of a monetary bonus tied to annual performance reviews,

If you were doing this for a company, what ends up happening is on monthly basis, we have a training module that has to be completed within that month. So, what I find is, it's mandatory, it's based on the bonus at the end of the year. It's 45 minutes and we have an incentive to do it. Only 45 minutes per month.

Despite the theme of social capital not being introduced previously in any of the literature reviewed, it does help elucidate the variety of barriers related to clinician involvement in professional development. Overall, the interview data provided key insights into how clinicians determine when, how, and what to participate in for professional development related to communication, relationship building, and stress reduction.

3) What delivery method do participants prefer to provide quality professional development for clinicians?
Due to high attrition, only one participant made it to the end of the program to complete the satisfaction survey. To maintain anonymity, their responses were summarized. Overall, the participant validated what interviewees noted about the time commitment and number of sessions required to complete that could be a barrier to completing the program. Due to the lack of data from the post-program satisfaction survey, the interview questions aimed to understand how clinicians prefer to consume content, both the format (e.g., infographic, one-pager, video, etc.) and the delivery method (e.g., small group, large conference, one-on-one, etc.). The interview questions that align with this process evaluation question best are, 1) “When thinking about a professional development program for clinicians focused on three core components of communication, relationship building, and stress reduction, what type of content do you find to be most useful? As a follow-up, would there be different types of content for each component?” And 2) “How do you think that content would best be relayed to a clinician audience?” Therefore, to examine these process evaluation questions, format of content and the method of delivery are both reviewed.

**Format of content.** A variety of formats were considered by respondents throughout all interviews. Initial coding created a total of 20 unique types of content that respondents would use to consume the education material. The top codes were video (n = 25), online/self-paced courses (n = 17), one pager/job aid and discussion (both a respective n = 16), and audio (e.g., podcasts) and emailed content (each with 11 codes respectively). These codes became categories of auditory (verbal), visual (video), participatory (i.e., interactive), little to no interaction with others, and reading. Visual, participatory, and little to no interaction with others were the three highest ranking categories, with each containing a cumulative of 37 references to codes in the initial interview analysis.
Interviewees who stated a preference for visual or video content often explained that it was beneficial to see what they were supposed to do in a certain situation. For instance, several interviewees noted video as being an important part of the learning experience, specifically when you can see or hear the content performed in a vignette or other interaction on how to deal with a situation.

1) Video and online can include embedded videos and you can see it/hear it.

2) Some of what we are exposed to [education] involved videos. See vignettes of interactions and then reflect on how to better deal with the situations and relationships.

3) I would say a video-based presentation using small groups has been effective. Using video examples of particular issues regarding communication and then make small group conversations, creating a rubric for the small group to use.

One of the interviewees revealed a desire to make the experience participatory as well. Indeed, clinicians interviewed purported that small group participation or interactive learning environments made the session more tolerable and likely to be thought of highly afterwards. To validate this theme, one respondent noted, “There could be a benefit of some type of get together as a group and practice what they learned from that content; scenario-based situations where they can act out or role play”. Another respondent commented on types of content they have created within their organization during the COVID-19 pandemic,

With COVID, that [online education] went to HealthStream [a widely used online, clinician-focused content portal], and we use it for all kinds of communication and information dissemination. That turned into an hour-long HealthStream module which is online, followed by a virtual small group discussion and role play that consisted of four to
five clinicians…That also has been very successful, I haven't talked to the group lately, but I think that we're probably…I wouldn't be surprised, if they keep something like that moving forward because it seems effective and efficient.

Several respondents believed firmly that small groups were the best situation for learning, with one explicitly describing their preference,

100% in group, small group, live. Working in the hospital you have to take courses, click through. Running through codes, everything sinks in during small groups. You start a dialogue with colleagues. Smaller groups, in-person. Through COVID, tried to do virtual small groups, it's a disconnect, not as effective.

Another respondent indicates this would be their first choice for content to be interactive and participatory, “My first choice would be small group, interactive sessions”.

Several respondents during the interviews mentioned live, in-person education as being more advantageous to learning than virtual sessions, like the quotation above. Others warned of the possibility of going back to live, in-person sessions due to COVID-19. For instance, two interviewees explained this as a wariness of large group settings due to the pandemic and a reluctance to attend large conferences stating,

1) The other way across the spectrum, be leery of large group settings [because of the pandemic]. I don't know if that feeling is going to go away. I think the group of clinicians you're talking about, they may even be less interested in large conferences.

2) I don't think anyone has any patience to sit through an all-day conference. There are some good things that have come from COVID. One of them is using Zoom
[cloud-based teleconference platform], I would love to see meetings virtually versus a larger uncomfortable area.

However, related to the category of little to no interaction with others, one respondent lamented,

How much do I detest a webinar where they make you submit your question ahead of time or put in chat. Can't get off mute, or can't actually talk with the instructor afterwards. People often hung around afterwards in a [in-person] conference. People like Peloton have done that, come to a class, it's going to be live [virtual]. Why can't we think about something like that for professional education?

Indeed, a couple respondents noted that participants who are required to role play may not desire to participate in that type of education. For instance, this respondent noted,

I think one of the key features of interrelationships is live role playing or practiced that way. That's been most impactful for me. Could be the construct of who I am. I am unafraid of that type of training, I know some people may be more afraid of it. Doing it that way may not resonate with everyone.

A couple respondents indicated a fear of participating in role play, but felt that it is often a crucial piece of interpersonal education. One respondent commented on this fear stating, “People are busy and some people are turned off by small group sessions where there may be a risk of role play”.

**Method of delivery.** As the concept of how content is formatted for learning is important, the method of delivery was also discussed. A total of 19 codes were created from the initial coding process, and then seven categories were distilled from that list. Of the initial codes, group activity was the highest ($n = 28$), a focal audience being second ($n = 26$), and live (in-person)
delivery being third \((n = 22)\). These three codes became category headers as well, which contained less frequent codes pertaining to methods of delivery not referenced as often by interviewees, such as conference and retreat into the group setting, and focal audience being a category on its own. Live, in-person became the category of live, which included virtual and in-person, while also condensing the codes of webinar and virtual education into this category as well. Group delivery blurs the lines between the way the content is created for the learning event (as described in the previous section), as well as how it is delivered to the end learner.

Group facilitation during the interview focused on the engagement of the audience and the interactivity of the content to allow participants to practice, role play, and engage in the concepts discussed during the education. For instance, an interviewee noted, “A component I would recommend for those two [communication and relationship building] is a social interaction, somewhat interactive, versus strictly studying content”. The interviewee followed up indicating social interaction is a key element when teaching communication and relationship building components, stating,

I think even the best conferences I've seen have been very interactive, large conferences don't seem to be very beneficial. Interesting conferences or presentations, they're very engaged with their audience, form a connection, move them through things and almost interactive. Two-way in communication at times.

Related to retreats, another participant discussed how engagement is important and should include dedicated time to practice in a variety of learning modalities, including group exercise, to obtain the benefits of the concepts delivered during the education, stating,

[T]here's also the retreat. Some people feel like that is beneficial, day off, worked through a group exercise. The content--each of them can be different approaches. If you want to
change behavior, you need to hit them with different modalities and with small messages that are short and digestible.

As mentioned previously, the lines between content development and delivery for small groups is often blurred, which is exemplified in these two comments.

The number of participants in the group sessions was also an important factor to consider. Interviewees contended that limiting the number of participants in a small group session is key to engaging the individuals who may not say much, mediating those individuals that talk too much, creating more meaningful conversations, and allowing for the education concepts to be fully played out, if role play is a component. The minimum number of participants to have in a group was discussed as being two, and the maximum being 30. Most respondents indicated that it depends on the small group activity the participants are doing. In fact, majority of respondents stated an ideal small group number is between four to six participants to maximize participation and engagement in the group, regardless of the activity.

When considering the category of audience specificity, several respondents believed this was an important consideration to the design, development, and delivery of any professional development program for clinicians. Respondents expressed wide perspectives in the delivery of content for audiences, including

1) Grab a small segment of the clinical population and do one-day face-to-face intensives.

2) It [education] depends on who you're trying to capture.

3) Depends on the audience you're trying to reach. Difficult to schedule with certain people.
4) I think the group of clinicians you're talking about they may even be less interested in large conferences. Geographically sensitive group of SMEs [subject matter experts] that knows the cultural vernacular and nomenclature of the area. Each area is different. that kind of sensitivity needs to be taken into consideration.
Not only your program, but education online and large outreach. Those teams could do live, recorded sessions, screen casting, seeming interactivity with the speakers and experts.

5) CVC [central venous catheter] class, 4-hour class, 6 teammates. Not too many, able to get through the theory, then go to practical. Also have time to field questions and help them access resources.

6) Multiple specialties on the panel and emphasize certain things about the case [case study] based on their specialty.

In summary, interviewees felt that the audience should be specified at the outset of the education, the trainer or education content designers should consider the reality of scheduling with specific audiences (such as physicians), there should be a focus on the geographical sensitivity of specific audiences, a focus on content that appeals to a focused audience versus generalized content, and to be cognizant of specialties when discussing case studies or emphasizing content related to a specific specialty.

Finally, the category of live extends to a rich contextual location for education participants to receive the content. Whether this location is in-person or virtual, respondents of the interview felt strongly that this delivery method was preferable to independent or individual consumption without the inclusion of others. One respondent noted about the benefit of learning different types of communication types, “Live group, participation, ILT [instructor-led training]
group settings, focus on better communication, where you learn different personality types and how to communicate with those individuals”. Additionally, another respondent described their preference related to face to face education, even in a virtual setting, “I think direct, verbal, preferably face-to-face, [even if it] may have to be virtual, is preferable for professional development”. Finally, another respondent described the challenges they have faced with virtual sessions and how they have tried to incorporate a sense of connection amongst participants,

Not being able to hold live classes, onboarding has been difficult. We have to be really creative and very quickly. It takes a lot of computing power to figure out how you'll make it work. That doesn't feel good about the product you're putting out and the new person doesn't feel supported or looking at surveys. Not having a connection with the team. It's not the same as being in the same room and trying to have a conversation. Can't collaborate the same way in a room. Zoom is a little harder--it's hard to collaborate in that environment.

Despite these challenges with the virtual platform, what came through from this comment is the propensity to continue delivering content in a virtual, instructor-led way that was dependent on audience interactivity and connection among participants and faculty.

Interestingly, there was only one participant who indicated that live, sessions are their least preferred method of delivery, stating,

It is really changing and you're dealing with folks that have short attention spans…What I think works for a physician may not work for an RN [registered nurse], or other healthcare professional. More physicians are turning towards podcasts that are consumed during a downtime. I'm driving back and forth to work, this is a huge way that I'm leveling up on accessing more knowledge. Could be 40-50 minutes where I'm a captive
Podcasts. Webinars work if I can do them at 2× speed. Live instruction is my least favorite, unless it's a physical skill that it needs to have hands on, development, coaching of that skill. Live workshops are the worst. I have to physically go to them. The pacing of the delivery is too slow for me. Most of them are designed horribly and without good evidence based about how they're presenting the content.

Throughout this analysis of the process evaluation, several aspects of the data collection and review process revealed there are multiple ways to review and examine the process of a professional development program for clinicians. The post-surveys may have added additional contextual or experiential insights from participants of the MC intervention that was not discovered through the interviews. Vice versa, had the intervention concluded as expected, and the interviews not conducted, the rich experiential data collected from respondents would not have been able to examine how clinicians experience professional development programs. Therefore, the overall process evaluation provided insights based on what is presently happening in the pandemic-focused healthcare system.

**Outcome Evaluation Questions**

1) How does a clinician’s group salience influence their interprofessional communication with other clinicians?

To answer this research question, several data were used. The communication accommodation theory (CAT) survey aimed to answer this question. Despite the lack of post-survey results to compare to the pre-survey, there are still important insights from these data that are contextualized by the interviews and reflections from sessions. The a priori codes and the measures associated with this question are attending to a physician’s or other clinician’s communicative competence, attending to the emotional needs, and attending to the role
relationship during the communication. Questions five through 12 from the CAT pre-survey help answer this research question and participants used a 6-point Likert scale, from one (not important at all) to six (very important) to respond to each question. Questions from this survey can be found in Appendix H.

A total of 23 participants completed the CAT pre-survey from the Mindful Communication intervention and the overall mean for the survey was 4.53 and the SD was 1.18. This suggests that most participants believed accommodating during interprofessional communication is important or mostly important but there was some deviation in what aspects of communication participants deemed important. Therefore, to answer the research question, it is important to understand how group salience influenced responses to the CAT pre-survey, the participant reflections collected from the intervention, and interviewee responses to interprofessional communication they have experienced.

**Attention to emotional needs.** When considering how group saliency influences attending to a clinician’s emotional needs, responses in the CAT pre-survey for this subscale were lower than overall survey ratings, with participants only indicating this was important ($M = 4.18$, $SD = 1.05$). The survey also contained open-ended space for participants to explain their response further. One such participant, when asked about reassuring the peer clinician rated it as slightly important and stated, “I would rather reflect back what I'm hearing rather than reassure”. Another who rated acknowledging and reducing a peer clinician’s anxiety as being important also recounted, “However I don't know that this is something that is my responsibility. I currently approach it that it is and never want someone to feel anxious”. Finally, and of note, three participants out of 23 responding to the CAT pre-survey did not understand the purpose of the open-ended questions to expand upon the rating they provided and/or indicated in the notes that
they sought clarification about who is considered a peer clinician. Whether this additional clarification is related to the survey or to the participant’s approach to communication and relationships with peer clinicians, is unknown.

To explain the lower mean of the emotional needs subscale, session two of the intervention contained a reflection where participants described a time when they felt emotions while communicating with a peer, how those emotions impacted the ability to communicate with one another and what they would do differently now. Three participants reflected how emotions impacted communication and their perception of the situation. The first participant discussed a time when they presented a topic, but their ideas got rejected by a few vocal individuals in the meeting. They described the feeling of being defeated and not supported by others, stating,

I was in a faculty meeting presenting some new ideas that I had worked hard on. A few select and especially vocal individuals proceeded to shoot down these ideas. No one else spoke up to back me up and I felt defeated. I basically disengaged and I just said I guess this isn't going to work and moved on. It was very demoralizing. If I were confronted with this situation again, I would come back with a response or try to solicit input from others to make it more conversational than let the dynamic of some more senior faculty dictate the direction of the conversation.

Another participant reflected on a time when they felt disrespected and their opinion not valued by peer clinicians working in another department.

Almost all my interactions at work are with staff who work for me, or students. My interactions with peers tend to be cordial, since we have little reason to work together. A long time ago, I did work with peers to support the hiring of someone I liked, but they did not give support. This left me feeling that my opinion was not respected, and that they
were selfish in their views. I suppose that I could have expressed that feeling openly, to see if it changed any minds.

Another participant recalled a time educating a new clinician and being told by the trainee that they were being difficult when they asked to describe a policy and procedure. This interaction led to feelings of anger, frustration, and how this interaction may affect their professional career path, asserting,

I recall a time when I was training a new clinician. This person was trying to fast-track themselves through a live practical by insisting they already knew how to perform the tasks. When I asked this person to explain in detail the policy and procedures as well as rationale for the task being taught, they proceeded to accuse me of being difficult to work with and targeting them because I didn't like them. I felt angry, frustrated, and concerned this could negatively impact my professional trajectory. Those emotions created a more difficult communication path and I did not handle it well at that exact moment. I remember this exchange because it has informed me about when to ask for a reprieve from a situation to find some calm and collection before continuing with the conversation -- something I should have done then and readily do now.

These reflections suggest that attending to the emotional needs of others during communication may not be a part of the social identity of clinicians as much as other aspects considered important during communication. Additionally, group saliency during the interactions described may have contributed to these individuals feeling that they were not heard, not respected, or not supported by out-group members.

Clinicians may learn to address or mediate intergroup communication issues by reducing group saliency and promoting social identity amongst the group. For instance, a core theme
highlighted attention to the concept of self-regulation amongst interviewees, which was found as a theme across many interviews ($n = 94$). For instance, several interviewees noted self-regulation in the form of knowing when to have a conversation versus when not to, based on their or the other person’s emotional state. This regulation took the form of pre-planning of the discussion, developing self-control to avoid arguments and in-group fighting, accepting responsibility for actions (even when they may not be at fault), and developing self-discipline.

You really have to plot out ahead of time, and develop self-control. Other people have fights. I go in there and figure out what I need to get done. I eat a lot of crow. These are not people you can take on as a frontal assault. You know that day to come back a different day. Takes a large amount of self-discipline.

Other respondents indicated a need to be attentive to the type of person, for instance, more sensitive people and engaging them differently. With one interviewee stating,

1) I have learned that certain personality types you need to be more careful--sensitive people. Makes me more cautious about how I approach certain people.

2) Engaging them, getting or talking about how I experienced the situation and how they experienced it. Talk about how each other feels about it. Using some of the conflict resolution models that go by many acronyms. Just try to talk about it but get to a deeper understanding of what's going on.

Moreover, respondents suggested that when attending to others’ emotional needs during communication errors, the timeliness of feedback and resolution can aid in repairing communications and relations between that person or an entire group of people which emphasizes a social identity surrounding a common goal,
1) Engaging them, getting or talking about how I experienced the situation and how they experienced it. Talk about how each other feels about it. Using some of the conflict resolution models that go by many acronyms. Just try to talk about it but get to a deeper understanding of what's going on.

2) Give it [feedback] early and give it often. What helps most is basically, and having to have this come up more frequently than I would like to acknowledge, this is not something you sit on. If it's something difficult, I prefer to deal with it on the spot. If I'm feeling like I'm not communicating as effectively as I like, try to own it. I want us both to feel like we're ok to share ideas real-time especially in clinical situations. What can we do to address this? Get to the root of this as soon as possible. For difficult conversations, I think all team members want the same things. We all want to be effective clinicians, be good for the patient. If I'm misunderstood, or someone thinks something I did is wrong, maybe it's a misunderstanding. How can I understand them better? 95% of the time that takes care of the problem. About 5% of the time, it doesn't work. If I'm having communication challenges with someone maybe I'm having a mental health issue. Maybe it's not just about getting our communication back on track.

Session three offered two opportunities for participants to reflect on how they experience relationship building. The first reflection question in session three asked, “Think of an interaction with an out-group member (when your in-group membership became the most salient). How did your group membership affect the communication? What coping strategies did you develop?” This goal was emphasized in a reflection from session three, with one participant responding,
If I'm misunderstood, or someone thinks something I did is wrong, maybe it's a misunderstanding. How can I understand them better? 95% of the time that takes care of the problem. About 5% of the time, it doesn't work. If I'm having communication challenges with someone maybe I'm having a mental health issue. Maybe it's not just about getting our communication back on track.

The second reflection in session three of the MC intervention which asked participants to make a plan to develop better communication with out-group members. One participant reflection focused on enhancing in-group and out-group connections to encourage the commitment to overall patient care, stating,

I will work with my physician colleagues (in-group) to discuss better out-group connections. We can clearly learn more about the group, and increase our own awareness, and get more invested. This will take time, so we'll need to want to do it, and commit to it.

Not only did the reflection attend to the relationship needs of the out-group, but it also involved the in-group needs and self-regulation, using awareness. This reflection also indicated that the participant writing this believes in the importance, similar to those who completed the CAT pre-survey, that attention to emotional needs is important.

Finally, considering a different perspective in social identity and group salience, interviewees noted that many clinicians who take a relationship building or communication course are required to due to company requirements, low patient scores, or some other negative rating related to care and/or behaviors. Indeed, several respondents cited these extrinsic motivators as a key association with taking a professional development course.
1) Our work with physicians who have worked badly, it's devastating to other RNs and team members. We've had people resign. We've had people be sent home because they can't work anymore that day. It's been useful to get physicians to understand their impact on other people. It's tricky because they think they're just trying to take care of their pts.

2) You're [a physician] identified early on as being subpar and behavioral conduct. That means to me that it's difficult that people are people, physicians or not, and their behaviors are set before they're trained. It's very hard to get them out of that... to train in professional development. It's easier to select people at the beginning, people who may not act professional.

3) The stick approach is to make it a requirement for yearly competency. Not especially popular and people will try to get through it as fast as they can.

These quotations explain how physicians and other clinicians need to realize that how their group salience may influence their likelihood to attend to the emotional needs of the other person during communication. Additionally, when clinicians are identified early in their career as being subpar or needing behavioral corrective action, it is difficult to train these individuals later in their career. Finally, it is interesting that several respondents indicated their organization mandates professional development related to communication and relationship building, but they did not believe this is the best approach for actual learning and behavior changes. This is important in the development of organizational identity and professional identification development to better determine when group saliency may influence the communication efforts.
Attention to a clinician’s communicative competence. Clinician viewpoints on communication varied widely throughout the CAT pre-survey responses, interviews, and reflections from the MC intervention.

Related to attending to another clinician’s communicative competence subscale, participants rated this as slightly more important than the overall survey instrument ($M = 4.66$, $SD = 0.95$). These ratings highlight that group salience may be a factor in how a clinician interacts with other clinicians and what aspects of the interprofessional communication are important. Indeed, several interview respondents noted the likelihood to get involved in a program focused on communication when it is something they believe is important or beneficial for their practice and patient care. One interview respondent described the importance of a communication program within their institution,

Civility in clinical care, if I picked out one, I would pick out communication. It's something I would try to teach students and you don't always see the behaviors. Our NPs [nurse practitioners] learn from improv groups and how to communicate effectively in difficult situations. We practice it. Communication is really important and to learn how to reply with strategies when someone is complaining or you disagree with someone. How to effectively communicate your concerns about the situations and your goal for patient care.

This quotation offers insights into how one clinician views communication and how their organization instills the value of communication to members of their group. Interestingly, four participants indicated on the survey that they either did not or moderately believed that facilitating a consultation and patient hand-off/transfer was important. These responses may indicate lower social identity to overall patient care efforts or lower organizational standards to
believing communication is important and valued. However, interviews conducted with clinicians highlighted coordinated patient care efforts suffered when communication was not valued or deemed important. For instance, one respondent described a situation where they tried to share information about a shared patient with a colleague and they refused to talk with them, even when seeing them in a public space. According to this respondent, their colleague was known for avoiding other clinicians because they believed they felt challenged when approached, which may offer insights into how in-group/out-group dynamics interfered with patient care. They stated,

   There was one [physician] that I thought her behavior was so bad and went to her supervisor and told them that she was not behaving as expected. They told me they knew it was an issue. If you shared a patient, she would refuse to talk with you, even if she saw you in the hall. It was a defense of feeling challenged…I learned to just not talk to her because it wouldn't work.

   The respondent developed a coping technique to respond to stressful communication interactions with their peer, which the peer who refused to discuss patients also appears to have developed as well. This quotation emphasizes variances in social identity and challenges during intergroup communications in that this respondent described their shared goal of prioritizing patient care and building relationships with the physician. The physician, who refused to share details of the patient, suggests a variance in the broader social identity to care for patients, especially while working for the same organization. Three Mindful Communication (MC) intervention participants in session one also reflected on the concept of handling challenging intergroup communications. The participants reflected on a time when a communication did not
go as planned or was not how they wanted to communicate with the peer. These descriptions of communication issues between clinicians are described by participants below,

1) The clinician seemed angry or put out by a request to care for a patient, and, despite multiple offers, refused to accept information about her, and did not affect a proper handoff. This led to a near miss situation. I no longer have faith that this clinician can care for my patients properly or safely.

2) While I was attending on our inpatient service, I was giving sign out on a patient to a hospitalist at an outside hospital who was going to be accepting my patient. I don't do inpatient medicine super often and give formal signout even less often, so I was a little rusty and my presentation was not completely organized and this was further compounded by the fact that I didn't know all the details about the patient. I felt that the hospitalist was curt and somewhat annoyed. It made me feel "less than" and ramped up my insecurities about my capacity to do inpatient medicine as a predominantly outpatient medicine physician. I suspect the norm I'm accustomed to of FM being considered inferior played into this.

3) I recently experienced an interaction where I provided input to a colleague, on a project that we are working on together. My feedback was generally positive, but I pointed out areas where I thought that the work could be improved. I learned later that this person thought that my feedback was negative, and not constructive. In retrospect, the mode of discussion (phone call, due to COVID), may not have been the best, and also our age and gender difference may have led to poor communications. We then met in person, and are continuing to work together to improve our communication.
Each of these descriptions may indicate how group saliency during interprofessional communication exacerbated challenges in getting a point across, sharing patient information, or working together on a project. Additionally, attending to the emotional needs of the other clinician during communication is also emphasized in the first and second descriptions.

Data suggest how clinicians view the importance of communication varies and may not be seen by some clinicians as a detriment to coordinated care efforts. However, a clinician’s stance on the importance of communication may provide insights into how group saliency influences the likelihood to participate professional development program focused on communication. Open-ended responses in the CAT pre-survey revealed interesting insights related to participation considerations. One participant who rated that it is important to put their own point of view across as important also noted, “Patient care is a discussion that leads to agreement”. While another who rated it as not important stated, “Facts speak for themselves - not place for opinion”. Therefore, varying social identity may influence the likelihood of someone enrolling into a communication professional development. Specifically, a potential participant may be interested in expanding certain aspects of intergroup communication (e.g., listening to a peer clinician, project-based communications, etc.), but have unchanging views in other areas of development (e.g., sharing patient details, offering a point of view, etc.). Interview participants corroborated this concept with several suggesting that clinicians, and physicians in particular, may believe they already have skills to communicate with peer clinicians and do not believe that taking an additional course on communication will benefit them. Indeed, several respondents indicated that tenured physicians may be less likely to take courses on communication because they have been doing it for so long and have ingrained practices. Three respondents stated,
1) Clinicians/physicians are competitive and arrogant. You may find a few who are empathetic of the world, but that's a hard bridge to cross. Telling someone if they do something different, that they could have a positive impact and they already think they're doing something right.

2) I think you can learn things after doing things for a long time. Think about enhancing communication. … Practicing physicians aren't very interested in that.

3) I believe you're preaching to the choir who already have a significant professional interest in delivery of communication skills. An average clinician who is in practice is not going to want to take 8 hours of time to do this, even if it comes with CEUs. They're going to regard it as more communication education than they need on a day-to-day basis. For this intensity of experience, if you want to keep it at this length, you would be better off recruiting people of communication skills, in medical schools because they have a particular bend toward this type of material.

Considering these quotations, it is beneficial to also consider how the chrono system influences physician and clinician communication patterns over time, as well as how the organization and/or professional identity has been developed based on experiences with colleagues and employers. For instance, the last quotation mentions recruiting participants from communication programs at medical schools because they would be more interested in it. This may highlight an out-group mentality that this respondent views the communication department differently than their clinician peers outside of that department. Moreover, the fact that respondents delineated specific characteristics of clinicians and physicians, indicates they are categorizing group members’ values, norms, and behaviors.
Overall attending to communicative competence varies widely across physician and clinician specialties, and what each group views as important aspects of communication. Attending the emotional needs of a peer clinician or physician appears to be influenced by group saliency and the expectant results of communicating with the peer (e.g., knowing if the other clinician will be receptive to discussing a mutual patient). Therefore, these data surrounding the attention to communicative competence and emotional needs, suggests that group saliency is a core aspect of how clinicians interact with one another during interprofessional and intergroup communication.

Based on these data, the development of a clinician’s social identity related to communication may be dependent on the values, norms, and behaviors associated with their group. Additionally, how the clinician identifies with their organization may also influence group saliency, attending to emotional needs, and intergroup communications. Social identity may be a difficult concept to measure, and these interviews, reflections, and CAT survey data help to explain how a clinician’s group salience may influence their communication. Specifically, the intergroup dynamics with attending to emotional needs and a clinician’s communicative competence. Overall, how a clinician develops and adapts to intergroup communications appears to be influenced heavily by group salience and the interactions amongst intergroup members. Unfortunately, the intervention was not able to measure how participants perceived group saliency during communications. However, data collected does provide insights into how clinician’s experience group saliency and social identity during intergroup and interprofessional communications which may inform future research.

2) What aspects of a clinician’s social identity influences their perceived stress?
Stress was determined to be a factor in the problem of varying levels of social identity amongst clinicians. The Perceived Stress Scale (PSS) aimed to measure pre-post perceived stress of MC intervention participants. However, only pre-survey data were collected due to limited participation. Therefore, pre-survey data and feedback obtained from interview respondent help to answer this research question.

There were 21 participants who completed the PSS pre-survey. The pre-survey contained three open-ended questions where participants were asked to describe their perceptions of stress related to interpersonal relationships, current role, and coordinating or mediating care for a patient with another clinician. The PSS pre-survey consisted of 14 questions, with questions containing a superscript \(^a\) being reverse coded. These were reverse coded in SPSS by uploading the scales and then manually reversing the values of each question. Participants responded on a 5-point Likert scale from one (never) to five (very often) to rate how often they felt stress. Using SPSS to conduct a descriptive statistics analysis of the pre-survey results indicated that most participants entering the Mindful Communication intervention felt stress on items not reverse coded, mostly sometimes \((M = 2.88, SD = 1.21)\), and did not feel stress on reverse coded items between often and sometimes \((M = 2.61, SD = 1.02)\). These results suggest that the participants responding to the survey may have a lower perception of stress.

To help understand stress related to group saliency and social identity, interviewees were asked to describe a stressful situation with a peer or colleague, with the interview question stating, “If you can think of someone who you’ve had a challenging professional relationship with, how have you experienced relationship building, communication and stress when it comes to managing a professional relationship with someone you find to be difficult or challenging? As a follow-up, I’m interested to know the relationship of this person to you. Was it a colleague in
the same specialty or department, or from a different specialty or department?” Of the 19 interview responses, the primary codes that came from the initial analysis generated 13 references to challenging interpersonal relationships and three under each respective code of feeling overwhelmed (an a priori code) and physical effects from stress that situation had on the body (an emergent code).

Therefore, to answer this research question it is important to examine clinician-specific stress and how clinicians orient to stress in their profession. These two aspects help to define the social identity of clinicians and how they relate to stress overall.

**Clinician-specific stress.** While stress is often attributed to many healthcare professions, clinicians and physicians may face specific stressors in their roles, especially during the COVID-19. The ability to identify areas of the social identity that may influence stress could help to design and implement programs to intervene on stress effectively in the clinician population. For instance, one clinician in the open-ended questions from the PSS pre-survey stated stress from interpersonal relationships was, “Relatively high as new job role and COVID era has increased everyone's stress level”. Participants responding to the PSS pre-survey also indicated feeling moderate to high stress levels in their current roles, with one participant stating, “Difficult to keep at bay on occasion and lack of direction”. Another participant provided a qualifier of being a physician when responding to the question, stating, “Minimal as a physician”, which emphasizes the group categorization of physician when considering stress. Finally, the last open-ended question in the survey asked participants to describe their stress related to coordinating care with other clinicians, with one participant stating that, “The difficulties more typically arise when care plans are not followed through by ancillary staff not typically physician to physician related”.

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These responses not only help to confirm clinician-specific stress, they may also highlight specific aspects of social identity that influences perceived stress. For instance, simply associating with the broader clinician population during a pandemic may have significant professional identity development that contributes to a shared sense of stress. In fact, one interviewee lamented how the type of stress reduction content or activity may be a bigger deterrent for potential clinical attendees, stating,

If you're looking at the stress of medical practice, there are band-aids that do not begin to touch the systematic and structural issues that are creating the stressors for clinicians.

During the pandemic, a one-hour yoga workshop isn't going to cut it. Not something healthcare providers needed during the pandemic. I don't even bother with it. I find them insulting.

This quotation confirms how a broader social identity and professional identity may be created through the perception of stress in the healthcare provider community. Therefore, the understanding of interprofessional and intergroup interactions should be considered when creating content for clinicians aimed at reducing stress. Not only does the content need to address the aspects of stress reduction that clinicians need or want—it should also understand any norms, values, and behaviors clinician groups adhere to related to stress reduction beliefs and activities.

Finally, another theme that emerged in the interview coding analysis was the concept of how clinicians orient to stress, in the form of internal and external stress. For instance, respondents referred to external stressors (e.g., fragmented coordinated care, poor communication, stress from administrative tasks, challenging interpersonal relationships, and pandemic-related stress) more frequently (n = 53) and less favorably than internal stressors (e.g., feeling overwhelmed, physical effects on body or mind and rumination; n = 23). One interviewee
proposed a tactic that helped them re-orient how the external stressor was affecting them internally and provide control back to the individuals in the interaction, stating, “Taking that [re-orientation to stress] approach helps gives us a moment to pull away from the stress and visual internalization to assess emotions. Gives control back to every person in that particular situation”.

While the PSS survey did not produce the anticipated data, the interviews helped to make sense of how clinicians perceive stress. This preliminary review of clinician stress may help to inform the development of future instruments to measure how clinician social identity influences stress and/or their perception of clinician stress reduction programs.

**Clinician perception of stress reduction programs.** Overall, interviewees did not mention or discuss stress reduction as much as relationship and communication. Given the current state of healthcare dealing with the COVID-19 crisis, this omission appears to be of importance. However, interviewees noted some barriers clinicians may have related to attending or completing a stress reduction program. First, several interviewees contended that using the term mindfulness in the title or description of the program may be a detractor or deterrent for some clinicians. Indeed, one interviewee noted that some individuals interested in a stress reduction program may not have an interest in learning or using mindfulness. While two other interviewees noted that the actual phrasing *mindfulness or mindful* is a detractor, stating,

1) The word mindfulness, people love it, but I wonder if there aren't a few people who hear that word, like me, who hear the word meditation and wellness…if it has to do with me taking care of myself, I would rather do what I want.

2) It's hard to make someone participate in a mindfulness concept. Not everyone has that desire or drive to learn that skill.
In fact, one respondent went so far as to say, “I shut down when I hear mindfulness. Some people are really into mindfulness and benefit from it. You can also not call it mindfulness and create your own name for it”. This is an important consideration when creating a program for clinician stress reduction because prospective participants may have a preconceived notion about what it will entail and/or believe they can do mindfulness on their own and do not need additional wellness support in that area.

Not only do these comments suggest that it is important for developers and designers of content be diligent when understanding their target population, but it also indicates that clinician participants of stress reduction programs desire content that addresses audience-specific content that is relevant to them and addresses their needs. The need for more relevant and audience-specific content suggests that social identity influences stress reduction program attendance and completion at a professional, occupational, or organizational identity levels. Therefore, these social identity attributes of clinicians should be considered when developing professional development content for this population. Related, these data suggested that clinicians desire a valuable and meaningful stress reduction experience that is appropriate for their level of stress and not a standard approach. Finally, and of note, many clinicians during the interview did not emphasize stress reduction as a needed program offering as often as communication and relationship building. This is despite a global pandemic and that participants who responded to the open-text fields in the PSS pre-survey indicated heightened stressors due to the pandemic.

3) How does a clinician’s group salience influence their relationship building with other clinicians?

As with communication, group salience may influence how a clinician interacts with and builds relationships with clinicians across various intergroups. The communication
accommodation theory (CAT) pre-survey, reflections within the MC intervention, and interviews provided rich contextualization of the lived experiences of physicians and clinicians on how they build relationships. To answer this research question, questions from the CAT pre-survey are used, which focus on measuring the attention to relationship (questions one through four) and role relationship (questions nine through 12), and SPSS was used to generate descriptive statistics.

Within the MC intervention, session one offered a reflection for participants to describe how their group saliency influenced relationship building and communication. And finally, qualitative analysis of interview data used an a priori code of attention to relationship needs, which was referenced a total of 29 times. Additionally, two emergent codes of attention to team or individual dynamics during communication and accommodative strategies to relay information appropriately (e.g., verbal/non-verbal, deliverer vs. receiver). Each of these codes produced an additional 90 references to this overarching concept of attending to relationship needs.

**Attention to relationship needs.** The subscale of attending to relationship needs in the CAT survey measures the propensity of the participant to understand the relationship needs of the other person. Participants of the MC intervention rated this as being important to mostly important to them ($M = 4.54$, $SD = 1.17$). To contextualize these data, interviewees described mechanisms or approaches they use to enhance the attention to relationship needs. These approaches included, emphasizing constructive discussion for clinicians instead of a focus on judging, blaming, or shaming actions that were not beneficial for patient care or communication. Additionally, another added it is important to acknowledge patient or staff anxiety, stress, and hostility with an open and physical action, such as taking a literal step back. Respondents stated,
1) Maybe we try emphasize, it's not about blaming them, it's not about judging or shaming. it's about you want to be better and we want to help you improve and you learning to do a better job.

2) If I find that I'm getting stressed during the patient interaction, the patient is anxious or hostile, or the front staff are stressed out. What I'll do is physically, and I'll make it apparent, take a step back with my hands up and open, and vocalize that action. I then say Ok, all right, let's take a step back and I'm the one who takes it back.

Both quotations emphasize how reducing their group salience by acknowledging the out-group member may promote intergroup relationship building. Another respondent underlined the importance of being clear and sensitive to the relationship. Specifically, attending to the stress of the other person and trying consciously to not add to that stress, even if it would produce an advantageous opportunity to take control of the situation or place themselves in a position of power over the other person. They go on to say that,

When you think about relationships and communication, you have to stress that you're trying to be clear, and you're being clear and sensitive to the relationship. You don't want to add to the other person’s stress, even when it's an opportunity. There are techniques for that, but it needs to come from the sender. Hopefully the receiver would be an agreeable recipient. The sender has a lot of power in terms of how the relationship goes and their mindfulness to accomplish what's needed.

Overall, data suggest that participants of the intervention and interviewees recognize how group saliency may influence intergroup relationship building in a conscious way. Moreover,
their responses appear to highlight the attention to a broader social identity when interacting with out-group members, which they contributed to improving patient care.

**Attention to role relationship.** Attention to role relationship is how one clinician interacts with another based on their specialty or designated role in the institution (e.g., nurse, physician, academic chair, medical school faculty, etc.). Role relationship is a subscale of the CAT survey that relates to aspects of relationship building amongst clinicians. Role relationship can be viewed as an extension of group saliency and how different groups view roles, expectations of those roles, and prescribe norms and values to role relationships. In the CAT presurvey, participants rated the attention to role relationship subscale as mostly important ($M = 4.63$, $SD = 1.36$). Interview respondents corroborated these data, indicating that attention to role during communication was crucial during tense conversations or interactions with peers and non-peers. In fact, there were a total of 27 references to role relationship during the initial coding analysis. In the interviews, majority of respondents ($n = 17$) cited communication barriers with relative peers or peers of different department or rank. One such respondent recounted a time where there was an issue related to *power balance* and how the failure to recognize a power imbalance may result in difficult communications and relationship building with that clinician, stating,

> One of the issues here is power balance and the relationship and a failure to recognize that. For this relationship, I was the one who had the power, and the person on the other end wasn't/didn't recognize the things I needed as his supervisor were the things he needed to address…It became difficult after a couple months. I began to relieve him of certain job responsibilities. They weren't being done the way they needed…I also made sure that I was consulting my own superiors to make sure I was handling it appropriately.
All due process was being followed from a human resources (HR) perspective. Regular coordination with my superiors about handling the situation, my own personal responsibility to handle the corrective action and handled respectfully and appropriately. It was very stressful personally, and a process that took several months to resolve.

Although the description above describes an interaction between two clinician peers in the same department, the role expectations within this group may not have been explicitly outlined, stated, or adhered to by either group member. Additionally, it appears that the group’s expectations for roles were maintained and promoted by the organization because of HR’s involvement in the communication issue. Role expectations focus on group norms and values.

The first reflection in session one in the MC intervention, asked participants to consider their professional norms and values and how it impacts their communication and the relationships they develop. Two participants reflected on the importance of role and specialty communication efforts,

Watching this [session one video] makes me recall that I always had preconceived notions about the different specialties - impressions that I still reference when speaking with others! My professional norms are to take the time necessary to build relational trust and psychological/emotional safety, and to communicate root causes/associations to other clinicians.

Another clinician confirmed their value of communication and relationship building among various clinician roles, while describing their long-held beliefs about psychiatrists and how they may attend meetings and avoid contact with other physicians, stating, [I] definitely value communication among all disciplines. Interesting that you include psychiatrist. Always frustrated when they turn up late and don't talk to other doctors.
Maybe helps to make sense of that. We recognize which doctors will seek you out to communicate and which will avoid contact.

Clinicians participating in this study appear to understand, acknowledge, and actively manage or monitor group saliency during intergroup communications to promote relationship building. Aspects of their group salience they proactively monitor included how their group membership and status may impact the relationship, ways their norms and values may need to be reconsidered or more permeable to engage with members of an out-group, and aim to broaden the group categorization to extend to out-group members. Therefore, although the MC intervention was not able to produce measurable results, the reflections indicate that at least preliminary group salience identification and awareness began to emerge in some participants.

**Conclusions**

**Process Evaluation**

Important takeaways from the process evaluation of a professional development program designed for clinicians is that it needs to meet time considerations of the clinician audience it is being created for, the program should be easy to access or use, there should be some sort of ability for the practice of skills and transferability to real-life, and the perception that the program will enhance the social capital of participants involved. Interestingly, the fact that over half of the participants listed in session one of the MC intervention dropped out by session two seems to support the interview responses of how time constraints or other factors like those listed above can contribute to attrition. Related to the method of delivery, interviewees believed that a live education, whether in-person or virtual was better for clinicians than self-paced, individually consumed content. Therefore, program designers may want to consider hosting a live, interactive session versus creating a self-paced option, which was used in the Mindful Communication
intervention. Although the aim of the self-paced courses was to mediate the concern of participant time, it may have been a detractor for some to enroll in or complete the program.

**Outcome Evaluation**

Overall, the mindful communication intervention aimed to bring awareness to and reduce clinician group saliency to influence relationship building, communication, and stress reduction. According to interviewees, these topics are valuable and important to clinicians. However, group saliency and social identity are difficult to measure, and the original intervention designed may not have produced the clinician interest necessary to enroll in and complete a program on this topic. Additionally, a recurring theme across the interviews was that many clinicians felt the content should be delivered in a manner that is applicable to the roles and ways the target audience may benefit from the content. This may factor in to the idea that each clinician group expects or desires specific content based on their professional and/or occupational identity. Further, many of the interviewees indicated that unless there is deep intrinsic motivation to upskill on these topics, or an employer/institution mandates the completion, many clinicians may believe they already are proficient at these topics. As indicated previously, extrinsic motivators, such as employer mandates are not perceived to be an effective method to change behaviors or encourage participation in professional development in topics such as communication, relationship building, and stress reduction, which also may influence group salience related to organizational identification and group expectations within the professional setting. Therefore, they will not proactively seek out these topics unless suggested by others, such as leaders, trusted colleagues, or mentors/coaches. These findings may relate to the needs assessment findings related to human agency as well. Specifically, one specialty or role may perceive more autonomy
than another to proactively seek out these topics versus another that may wait until the employer requires it to be completed.

PSS data and the interviews suggested that clinicians manage stress based on a clinician-specific orientation to stressors and/or how they are expected to manage stress from their employers. Indeed, many stressful encounters are related to challenging intergroup communications and contextual stressors in their environment. However, many did not believe that clinicians would actively seek out content or programs to reduce stress. Interestingly, The Physicians Foundation conducted a study in 2021 on physician burnout and found that compared to 2018 data, there was a 21% increase in overall physician-reported burnout (The Physicians Foundation, 2021). This recent burnout survey result corroborates with a statement in Chapter One that more research should be done to understand how to develop professional development programs aimed at reducing stress in clinicians, and ensuring these audiences will want to take the education.

The complexity of addressing group saliency amongst clinicians appears to have been exacerbated by COVID-19 relief efforts in healthcare. While the intervention may not have addressed group salience as it intended, the outcome evaluation data suggest that clinicians are aware of group saliency, mostly in relationship building, but also in the areas of communication and stress reduction. Therefore, there is future opportunity to understand how to assess the levels of group saliency, ways to address it, and potentially, create content to intervene on these levels.

**Conceptual Framework Review**

Based on the interviews and reflections in the MC intervention, social identity of clinicians appears to be constructed based on role relationships across organizations. Conceptually, the framework (revisited in Figure 1.19) for this intervention is correct, however,
there are so many complexities to the various aspects of the healthcare system, that creating
content for the clinician population must be very pointed on specific topics with aims to specific
outcomes and benefits for the learner. Indeed, the theoretical framework outlined in Chapter 3
highlighted the variances of communication among specialties and roles within healthcare, as
well as how stress is activated for them based on interactions and the type of work they perform.
For instance, the development of a social identity may lead to stress/burnout, how they interact
with others based on organizational identification or their occupational identity. However, a
singular program that aims to address all aspects of these three adaptive processes may not meet
the learner where they are in their personal or professional identity development at a basic
human level. Additionally, it may be challenging to create a short program that then enhances
peer engagement to impact coordination of care and quality of patient care as outcomes. Further,
as indicated in the findings, several interview respondents disliked the terminology of
mindfulness which may indicate that the phrasing acts as a hindrance to enrollment of the
intervention.
Based on these discussion points, it may be beneficial to adjust the language of the outcome activation method from mindfulness to phrasing that is more generic. Otherwise, the conceptual framework appears to be useful in understanding the clinician population’s approach to social identity and how they adapt throughout their careers to engage and interact with other clinicians.

**Discussion**

As discussed at the beginning of this body of work, the problem of practice was how varying levels of social identity among physicians influenced in-group/out-group behavior with peers across an organization. These levels were thought to impact physician peer-to-peer relationship building, communication, and perceived stress and/or burnout (Ashforth & Mael, 1989). Additionally, these varying levels of social identity were expected to impact coordination of care, ultimately influencing the overall quality of patient care outcomes (Haslam & Ellemers,
Despite several barriers to recruiting physicians for the Mindful Communication intervention, the majority of interviews were conducted with physicians. And, although the intervention ultimately included clinicians other than just physicians, the findings suggest that the problem of practice extends beyond just the physician landscape which made the inclusion of other clinicians a valuable data point to understand the transferability of the findings to other fields.

Social identity is difficult to measure outright. As such, the networked ecological systems theory ([EST], Neal & Neal, 2013) model was used to understand how social identity influences and is influenced by factors in the environment. Although the exo system was not intended to be considered as part of the intervention review, it would be remiss to not describe the social identity impact of COVID-19. Physician and clinician occupational and professional identity became a hyper salient identity for this group over the last two years due to the pandemic necessitating around the clock care these professionals provided. The group saliency allowed for a dedication to patient care over anything else that may be part of the professional or occupational role, such as professional development. Therefore, this group saliency may have prevented clinicians from accessing or using resources in the meso level to address communication and/or relationship building issues or areas of stress within their occupation. It is noted by Tajfel (1982), when one identity becomes more salient than another, there is a greater focus on supporting or doing actions that benefit that group identity. Therefore, clinicians may have felt that they were not able to allocate appropriate mental and/or physical capacities to completing external, non-occupational related activities, such as professional development, that did not directly benefit direct patient care efforts. Also, of note, because of the saliency of the clinician occupational or professional identity, the researcher may have been viewed as an out-
group member, which resulted in lower likelihood for clinicians to support and complete the professional development intervention. In fact, several interviewees stated that a sponsor or advocate within the professional network or group may be necessary to champion and promote the intervention amongst clinicians. This need for a sponsor or champion within an organization is cited in other professional development literature (Guskey, 2002). Indeed, Guskey contends that organizational support is a key component to achieving professional development outcomes and includes it as part of an evaluation framework.

Social identity construction is an amalgamation of multiple facets of the human life (Ashforth & Mael, 1989). Because social identity is so diverse and broad a topic, the theoretical and conceptual frameworks offered a lens to look at how the clinician population interacts with one another, including their employer. In the theoretical framework, nested EST (Neal & Neal, 2013) provided an organized way to look at social identity and social cognitive theory, including cognitive activation theory of stress, in clinicians. Using the meso, macro and chronosystem settings, allowed for a review of how external factors, even ones that may feel controllable, affect clinicians very differently and how they handle stress, relationship building, and communication based on those factors. Interviewees and participant reflections within the MC intervention were also able to understand historical reference points that influenced clinician’s perspectives on day to day interactions with peers and those from different specialties, which related to challenging interpersonal relationships that often carried through to present day interactions.

While participants of the MC intervention and interviewees believed that quality patient care was important, many also described vivid interactions that hindered the ability to provide coordinated care. Participants of the intervention and the interviews did not explicitly state that
they considered social identity, group saliency, or in-group/out-group interactions when conversing with peers. However, they did describe situations, whether in reflections or during the interviews, where coordination of care suffered due to challenging intergroup communications. Social identity development is mediated by organizational culture, and how strongly professionals associate to their occupation, which can cause variances in how each clinician builds relationships and communicates with others to coordinate care. Further, the ability to manage stress was described in detail by several interviewees and how their employer or profession would support stress reduction programs, or how they were expected to manage their own stress without any employer involvement. These lived experiences highlight the challenges within the healthcare system to address and mediate how patient care is delivered. Additionally, these interviews, surveys, and reflections highlight how the clinician population lacks adequate support for and program development of beneficial professional development education. Finally, the intervention and interviews support the view that variances in clinicians’ social identity impact coordinated care for patients and confirms how different clinicians use group salience to relate to one another. While intervention data were not able to validate these findings through the pre-post-surveys, the intervention offers a promising next step for future researchers to continue investigating how clinician and physician social identity development influences communication, relationship building, and stress reduction across the healthcare landscape.

**Recommendations for Practice**

There are several recommendations derived from the results. First, when thinking about the MC intervention, the frameworks and content were identified as being correct for the clinician audience. However, the method of delivery and, arguably, the number of self-paced courses presented challenges for clinicians to complete the intervention. Therefore,
recommendations for a future iteration of the program includes creating shorter, more consumable content, perhaps in a live delivery format or podcast-style able to be accessed during the work day versus self-paced. To address the aspect of audience specificity from the findings as well, it may be beneficial to develop an assessment that learners take at the start of the program to understand their level of occupational, individual, or social identity, as well as their level of organizational identification. This self-assessment could help provide a more focused approach to displaying only content that would be applicable to the learner. Additionally, it may be beneficial to have a clinician panel to assist with advisement of content creation to ensure applicability to roles and group salience.

Given the constraints and issues surrounding the gating in the LearnWorlds LMS for the intervention, it would be a recommendation to ensure that all gating and functionality works as intended prior to the launch of the content. Additionally, although gating did not work in this intervention, it may still be beneficial to consider for a future iteration in order to ensure that the content is taken in the order intended to bolster fidelity of implementation. Indeed, if the intervention was adjusted as described above, it may be advantageous to gate the content to provide a more individualized learning approach.

Another recommendation is to garner support from an institution, leader, or other advocate of the content who can validate the benefits for clinicians to apply the concepts in their daily lives. Finally, many clinicians interviewed cited that the continuing education units (CEUs) or contact hours associated with the time required to complete the sessions was incongruent, thus was believed not to be a benefit. Therefore, a recommendation for a future iteration is to ensure that the return on investment and benefits for the clinician is explicit and appeals to the audience. For instance, an iteration of this MC intervention could potentially be delivered to an
organization who identified a specific audience to receive the information delivered as a small group exercise, either in-person or virtually, on a weekly basis with practice time within the session and encouraged after the session. Essentially, the small group becomes the point of accountability to enhance the application to real-life and act as an enhancement to social capital through professional networking. The benefit to the learner would need to be promoted by the sponsor of the education within the organization, and ideally should be a leader of credibility.

Although the pre- and post-surveys were never noted by either Mindful Communication (MC) intervention participants nor interviewees as being a detractor of enrolling in or completing the program, it would be beneficial to understand if they could be shortened, limited to either pre- or post- versus pre- and post-, or interspersed into the content of the sessions to lessen survey fatigue and increase the rate of completion. Additionally, if the surveys were included as part of the curriculum, participants of the sessions would be able to ask questions, which was not an option for the participants of the original MC intervention. This may reduce confusion about what the questions mean or what is meant by peer clinician, as described in the CAT survey. A benefit to adding the surveys into the curriculum could support a paired sample design that would allow for more robust analysis of how the program benefitted participants and changed behaviors over time. However, based on the outcome evaluation data, understanding the applicability of questions and relatability of these data to group salience and social identity research would need to be considered and scrutinized. A new survey instrument may need to be constructed and validated in order to accurately measure clinician-specific group salience and social identity.
**Recommendations for Future Research**

As mentioned briefly at the beginning of this chapter, the pandemic was not an intended external factor. However, if this body of work and study would have been completed prior to the pandemic, the results may not have produced as rich a contextualized description of an experiential moment in history. Arguably, the pandemic has forever altered the way education is designed, delivered, and consumed by learners. This study offers an introduction to discussing and researching what this next phase in professional education and development looks like for clinicians. Additionally, the pandemic may have altered the group saliency and social identity of clinicians in ways that are not yet understood. Therefore, it would be beneficial to understand how the pandemic changed clinicians’ concept of social identity and group saliency first, and then move forward with content development that is meaningful for these populations.

Future study of clinician professional development should include a deeper look at content that is currently out there and understand, from a clinician perspective, if it meets their needs, how they benefit from it, and whether it is applicable to real-life. Additionally, further research needs to be done on how to develop effective content that addresses time constraints, while also providing a perceived return on investment. The attention to time constraints may be heightened and especially needed in times when the healthcare field is even more strained than before a pandemic. Related to stress reduction professional development, it is interesting to note that many clinicians interviewed and who responded to requests to participate noted the irony of feeling stressed and not being able or willing to participate in a mindfulness-based program which aimed to reduce stress as well as improve communication and relationship building. With one person, quoted previously, indicating that they felt many stress reduction programs for clinicians do not address the systemic issues associated with stressors in the profession overall.
Therefore, developing stress reduction programs for clinicians should be a top priority, given the 20% increase in reported feelings of burnout among physicians, which is likely not isolated to that healthcare population.

Future research should also consider the construct of clinician social identity as a key determinant of how clinicians view themselves associating with peers, engaging in their organizations, and handling conflict or stress. Social identity in clinician research was rarely found during the literature review phases and would greatly add to understanding of this diverse and complex population. Additionally, many of the professional development programs developed for clinicians, specifically related to concepts including mindfulness, often lacked theoretical or conceptual frameworks that would enable researchers to link back to outcomes or evaluations. Overall, researchers in the space of designing, developing, and implementing professional development programs for clinicians should have a rationale for the way they design and evaluate their content. Not only would this help to review and examine results of the programs, but it could also create a sense of authority or validity for program participants who may be skeptical about the content benefits.

When considering future research in this area, it would be beneficial to understand how the partnership or support from an employer, organization, or institution benefits the participants. Recruitment efforts and completion of the program may hinge on the successful partnership with a supporter, whether that’s a company’s human resources department, an influential clinician leader, or a coaching/mentoring company that supports clinician professional development. As noted in one of the interview responses, there are some external organizations who curate clinician-focused content (e.g., HealthStream) and offer these courses to corporations who buy a license to distribute the content to their employees. That is one method discussed for an
integration with an organization. However, several interviewees also noted that many of the programs they attend are offered by external organizations in which their employer supports their attendance, but does not offer any follow-up or additional education post-attendance. In essence, clinicians self-select professional development opportunities that they believe will meet their needs. Based on this study, clinicians want to know they are going to get a positive return on investment, and if there is an advocate who can support and is credible to the target population, it is more likely the program will thrive. If clinicians can upskill in areas such as communication, relationship building, and stress reduction, it is hoped that coordinated care for patients may also improve which would not only benefit clinicians overall, but the American healthcare system.

Overall, clinician social identity development remains a complex topic to study. This study aimed to understand how a clinician from one group relates to a clinician from another group, while both maintaining a larger social identity to care for patients. This research considered a novel approach to look at intervening on clinician social identity to promote coordination of care and patient care. Although the study did not produce the intended results, it offered an opportunity to confirm the complex nature of physician and clinician identity. As patient care and the healthcare landscape continues to evolve, I hope that future research to design and develop education for this population takes into consideration the arc of the clinician identity development. The arc is the lifespan of an individual’s career trajectory over the course of their life. To consider that arc, is to learn more about factors that may influence varying social identity across their career and aim to meet the clinician learner where they are at. The broader aim of this study is to extend social identity research to other contexts and professions when considering how to design and create professional and/or talent development content for the arc of any individual’s career.
Strengths and Limitations

A strength identified for this study was that had it been conducted prior to the pandemic, it may not have offered as many recommendations for future research or offered a new way to consider professional education for clinicians. Additionally, although attrition and non-completion was not optimal for the study, it did offer an opportunity to examine all clinicians, instead of just physicians. Transferability may be enhanced, due to the inclusion of all clinicians and the overarching consensus from MC participant reflections and interviewees that group salience does influence communication, relationship building, and perception of stress.

There are several limitations to this study. First, the small sample sizes of both completion of the MC intervention and the interviews is a significant limitation. The small sample of completion data in the MC intervention made the ability to compare pre- and post-data of surveys impossible. Considering only one person completed the entire program, there is no ability to compare pre- and post-surveys, nor make any inferences on data related to how the program influenced outcomes. Additionally, there was no control group for the program which did not allow for the results to be compared to any other influences that may have been happening. Therefore, due to the lack of repeatable opportunities to test survey reliability, that is a concern.

The interviewees and MC participants self-selected to participate in the study, which may have resulted in a skewed representation of clinician perspectives related to communication, relationship building, and stress reduction professional development program design, enrollment, and completion. These limitations lead to the effect that makes these results unable to be generalized to the broader clinician population. However, the interviews did help validate the limited survey responses from participants in the Mindful Communication program. Further, it is
unknown whether the COVID-19 pandemic prevented clinicians from completing the MC intervention. However, there was strong suggestion from the interviewees that the pandemic played a large role in the healthcare community and how they approached professional development education opportunities.
Appendices

Appendix A

Welcome to the research study!
We are interested in understanding Physician Engagement and Professional Development. You will be presented with information relevant to Physician Engagement and Professional Development and asked to answer some questions about it. Please be assured that your responses will be kept completely confidential.

The study should take you around 10 minutes to complete. Your participation in this research is voluntary. You have the right to withdraw at any point during the study, for any reason, and without any prejudice. If you would like to contact the Principal Investigator in the study to discuss this research, please e-mail Haley Harbaugh at hharbau1@jhu.edu.

By clicking the button below, you acknowledge that your participation in the study is voluntary, you are 18 years of age, and that you are aware that you may choose to terminate your participation in the study at any time and for any reason.

Please note that this survey is often best displayed on a laptop or desktop computer. Some features may be less compatible for use on a mobile device.

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

Q2.2 Please select your gender.

Male
Female
Prefer not to answer

Q2.3 Please select your age range.

21-35
Q2.4 Please type your medical specialty.

________________________________________________________________

Q2.5 Select your time in your current position (years).

Less than or equal to 5
6-10
11-15
16-20
21-25
26-30
31+

Q2.6 Please type your method of reimbursement or pay (e.g., insurance company, direct paycheck from an employer, etc.)

________________________________________________________________

Q63 Have you ever engaged in mindfulness activities?

Yes
Q64 Please select what type(s) of mindfulness activities you have engaged in. (Select all that apply.)

- Meditation
- Deep Breathing
- Coloring
- Yoga
- Other

To answer the following questions, think about how important each statement is to you.

Q3.3 The process of supervising, influencing, leading, and controlling people at all levels is

5 - Extremely important
4 - Very important
3 - Moderately important
2 - Slightly important
1 - Not at all important

Q3.4 The chance to do things my own way and not to be constrained by the rules of an organization is
5 - Extremely important
4 - Very important
3 - Moderately important
2 - Slightly important
1 - Not at all important

Q3.5  An employer who will provide security through guaranteed work, benefits, a good retirement program, etc., is
5 - Extremely important
4 - Very important
3 - Moderately important
2 - Slightly important
1 - Not at all important

Q3.6  The use of my interpersonal and helping skills in the service of others is
5 - Extremely important
4 - Very important
3 - Moderately important
2 - Slightly important
1 - Not at all important

Q3.7  Working on problems that are almost insoluble is
5 - Extremely important
4 - Very important
3 - Moderately important
2 - Slightly important
1 - Not at all important

Q3.8 Developing a life cycle that balances my career and quality of life needs is
5 - Extremely important
4 - Very important
3 - Moderately important
2 - Slightly important
1 - Not at all important

Q3.10 To be in charge of a whole organization is
5 - Extremely important
4 - Very important
3 - Moderately important
2 - Slightly important
1 - Not at all important

Q3.11 A career that is free from organization restrictions is
5 - Extremely important
4 - Very important
3 - Moderately important
2 - Slightly important
1 - Not at all important

Q3.12 An organization that will give me long-run stability is
5 - Extremely important
4 - Very important
3 - Moderately important
2 - Slightly important
1 - Not at all important

Q3.13 Using my skills to make the world a better place to live and work in is
5 - Extremely important
4 - Very important
3 - Moderately important
2 - Slightly important
1 - Not at all important

Q3.14 Competing with and winning out over others is
5 - Extremely important
4 - Very important
3 - Moderately important
2 - Slightly important
1 - Not at all important
Q3.15   Developing a career that permits me to continue to pursue my own lifestyle is
5 - Extremely important
4 - Very important
3 - Moderately important
2 - Slightly important
1 - Not at all important

Q3.17   Remaining in my area of expertise throughout my career is
5 - Extremely important
4 - Very important
3 - Moderately important
2 - Slightly important
1 - Not at all important

Q3.18   To rise to a high position in management is
5 - Extremely important
4 - Very important
3 - Moderately important
2 - Slightly important
1 - Not at all important
Q3.19 A career that permits a maximum amount of freedom and autonomy to choose my own work, hours, and so on, is
5 - Extremely important
4 - Very important
3 - Moderately important
2 - Slightly important
1 - Not at all important

Q3.20 Being able to use my skills and talents in the service of an important cause is
5 - Extremely important
4 - Very important
3 - Moderately important
2 - Slightly important
1 - Not at all important

Q3.21 The only real challenge in my career has been confronting and solving tough problems, no matter what area they were in
5 - Extremely important
4 - Very important
3 - Moderately important
2 - Slightly important
1 - Not at all important
To answer the following questions, think about how much you believe each statement is true to you as a whole, not just as a physician.

Q4.2 I have always tried to give equal weight to my quality of life and to my career
5 - Extremely true
4 - Very true
3 - Moderately true
2 - Slightly true
1 - Not true at all

Q4.5 I would like to reach a level of responsibility in an organization whereby I would supervise others in various business functions and my role would primarily be to integrate their efforts
5 - Extremely true
4 - Very true
3 - Moderately true
2 - Slightly true
1 - Not true at all

Q4.6 During my career I have been mainly concerned with my own sense of freedom and autonomy
5 - Extremely true
4 - Very true
3 - Moderately true
2 - Slightly true
1 - Not true at all

Q4.9  Competition and winning are the most important and exciting parts of my career
5 - Extremely true
4 - Very true
3 - Moderately true
2 - Slightly true
1 - Not true at all

Q4.10  A career is worthwhile only if it enables me to lead my life in my own way
5 - Extremely true
4 - Very true
3 - Moderately true
2 - Slightly true
1 - Not true at all

Q4.11  Entrepreneurial activities are the central part of my career
5 - Extremely true
4 - Very true
3 - Moderately true
2 - Slightly true
1 - Not true at all
1 - Not true at all

Q4.13 I will feel successful in my career only if I become a high-level manager in some organization
5 - Extremely true
4 - Very true
3 - Moderately true
2 - Slightly true
1 - Not true at all

Q4.14 I do not want to be constrained by either an organization or the business world
5 - Extremely true
4 - Very true
3 - Moderately true
2 - Slightly true
1 - Not true at all

Q4.15 I prefer to work for an organization that provides tenure (lifetime employment)
5 - Extremely true
4 - Very true
3 - Moderately true
2 - Slightly true
1 - Not true at all
Q4.17 I feel successful only if I am constantly challenged by a tough problem or a competitive situation

5 - Extremely true  
4 - Very true  
3 - Moderately true  
2 - Slightly true  
1 - Not true at all

Q4.18 Choosing and maintaining a certain lifestyle is more important than is career success

5 - Extremely true  
4 - Very true  
3 - Moderately true  
2 - Slightly true  
1 - Not true at all

Q4.20 I prefer to work for an organization that will permit me to remain in one geographical area

5 - Extremely true  
4 - Very true  
3 - Moderately true  
2 - Slightly true  
1 - Not true at all
Q4.21 I am in full control of what I do
5 - Extremely true
4 - Very true
3 - Moderately true
2 - Slightly true
1 - Not true at all

Q4.22 I am just an instrument in the hands of somebody or something else (R)
5 - Extremely true
4 - Very true
3 - Moderately true
2 - Slightly true
1 - Not true at all

Q4.23 My actions just happen without my intention (R)
5 - Extremely true
4 - Very true
3 - Moderately true
2 - Slightly true
1 - Not true at all

Q4.24 I am the author of my actions
Q4.25 The consequences of my actions feel like they don’t logically follow my actions (R)
5 - Extremely true
4 - Very true
3 - Moderately true
2 - Slightly true
1 - Not true at all

Q4.26 My movements are automatic—my body simply makes them (R)
5 - Extremely true
4 - Very true
3 - Moderately true
2 - Slightly true
1 - Not true at all

Q4.27 The outcomes of my actions generally surprise me (R)
5 - Extremely true
4 - Very true
3 - Moderately true
2 - Slightly true
1 - Not true at all

Q4.28 Things I do are subject only to my free will
5 - Extremely true
4 - Very true
3 - Moderately true
2 - Slightly true
1 - Not true at all

Q4.29 The decision whether and when to act is in my hands
5 - Extremely true
4 - Very true
3 - Moderately true
2 - Slightly true
1 - Not true at all

Q4.30 Nothing I do is actually voluntary (R)
5 - Extremely true
4 - Very true
3 - Moderately true
2 - Slightly true
1 - Not true at all

Q4.31 While I am in action, I feel like I am a remote controlled robot (R)
5 - Extremely true
4 - Very true
3 - Moderately true
2 - Slightly true
1 - Not true at all

Q4.32 My behavior is planned by me from the very beginning to the very end
5 - Extremely true
4 - Very true
3 - Moderately true
2 - Slightly true
1 - Not true at all

Q4.33 I am completely responsible for everything that results from my actions
5 - Extremely true
4 - Very true
3 - Moderately true
2 - Slightly true
1 - Not true at all
Q62 The second phase of this study includes a 30-minute interview about occupational identity.

If you are interested in participating in the second phase of this study, please type your first and last name and provide your email address below. This information will not be used for any other purposes or for any other parties. You are not required to participate in this part of the study.

First and Last Name _________________________________

Email Address _________________________________
## Appendix B

### Career Orientation Inventory Anchor-Specific Survey Questions Retained and Removed

<table>
<thead>
<tr>
<th>Career Orientation Anchor</th>
<th>Survey Question</th>
<th>Retained</th>
<th>Removed</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Managerial Competence</td>
<td>The process of supervising, influencing, leading, and controlling people at all levels is</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>To be in charge of a whole organization is</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>To rise to a high position in general management is</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I would like to reach a level of responsibility in an organization whereby I would supervise others in various business functions and my role would primarily be to integrate their efforts</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I will feel successful in my career only if I become a high-level general manager in some organization</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Technical Expertise</td>
<td>To build my career around some specific functional or technical area is</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Remaining in my specialized area as opposed to being promoted out of my area of expertise is</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Remaining in my area of expertise throughout my career is</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I will accept a management position only if it is in my area of expertise</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I would rather leave my company than be promoted out of my area of expertise</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Autonomy</td>
<td>The chance to do things my own way and not to be constrained by the rules of an organization is</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>A career that is free from organization restrictions is</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Developing a career that permits me to continue to pursue my own life-style is</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>A career that permits a maximum amount of freedom and autonomy to choose my own work, hours, and so on, is</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>During my career I have been mainly concerned with my own sense of freedom and autonomy</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>A career is worthwhile only if it enables me to lead my life in my own way</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I do not want to be constrained by either an organization or the business world</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Category</td>
<td>Description</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>-----------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>----</td>
<td></td>
</tr>
<tr>
<td>Job Tenure Security</td>
<td>An employer who will provide security through guaranteed work, benefits, a good retirement program, etc., is</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>An organization that will give me long-run stability is</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I prefer to work for an organization that provides tenure (lifetime employment)</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Geographical Security</td>
<td>Remaining in one geographical area rather than moving because of a promotion is</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>It is more important for me to remain in my present geographical location than to receive a promotion or new job assignment in another location</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I prefer to work for an organization that will permit me to remain in one geographical area</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Entrepreneurship</td>
<td>Building a new business enterprise is</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I am always on the lookout for ideas that would permit me to start and build my own enterprise</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I have always wanted to start and build up a business of my own</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Entrepreneurial activities are the central part of my career</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Service to a Cause</td>
<td>The use of my interpersonal and helping skills in the service of others is</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Using my skills to make the world a better place to live and work in is</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Being able to use my skills and talents in the service of an important cause is</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I have always sought a career in which I could be of service to others</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I want a career in which I can be committed and devoted to an important cause</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Pure Challenge</td>
<td>Competing with and winning out over others is</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Competition and winning are the most important and exciting parts of my career</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The only real challenge in my career has been confronting and solving tough problems, no matter what area they were in</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Working on problems that are almost insoluble is</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I feel successful only if I am constantly challenged by a tough problem or a competitive situation</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Lifestyle Integration</td>
<td>I have always tried to give equal weight to my family and to my career</td>
<td>X</td>
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**Appendix C**

Research Question and Survey Item (by number) Association

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Appendix D

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**Medical Oncology**

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</tbody>
</table>

*Note: Bolded text indicated a correlation between the variables.*

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

a Cannot be computed because at least one of the variables is constant.
### Module and Session Matrix

<table>
<thead>
<tr>
<th>Session</th>
<th>Module Topics</th>
<th>Module Definition/Explanation</th>
<th>Study Author(s)</th>
<th>Study Contribution to Intervention</th>
<th>Program Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>Session 1</td>
<td>Sociohistorical awareness discovery and introduction to mindfulness</td>
<td>training about intergroup dynamic history, professional (societal) norms and values (e.g., stress), and interpersonal history</td>
<td>Kraner et al. (2009); Gallois, Ogay, &amp; Giles, (2005); Tajfel (1982); Haslam &amp; Ellemers (2011); Pinazo &amp; Breso (2017); Epstein (1999, 2003)</td>
<td>Present moment, reacting and responding to stress, stressful communication; explanation of sociohistorical dynamics; defining intergroups, in/out-groups; professional identity; introduction to mindfulness; levels of mindfulness</td>
<td>Group Salience, Relationship Building, and Stress Reduction</td>
</tr>
<tr>
<td>Session 2</td>
<td>Initial orientation to intergroup communication: Interpersonal Communication &amp; Present Awareness</td>
<td>training about interpersonal communication and present awareness techniques</td>
<td>Pinazo &amp; Breso (2017); Bylund, Peterson, &amp; Cameron (2012); Gallois, Ogay, &amp; Giles, (2005);</td>
<td>Awareness of emotions and their effect on interpersonal relationships; Interpersonal communication strategies; explanation of interpersonal communication</td>
<td>Relationship Building and Stress Reduction</td>
</tr>
<tr>
<td>Session 3</td>
<td>Initial orientation to intergroup communication: Intergroup Communication &amp; Present Awareness</td>
<td>training about intergroup communication and present awareness techniques</td>
<td>Pinazo &amp; Breso (2017); Gallois, Ogay, &amp; Giles, (2005); Hewett et al., (2009)</td>
<td>Awareness of resistance against mindfulness; explanation of intergroup communication; intergroup communication</td>
<td>Group Salience, Relationship Building, and Stress Reduction</td>
</tr>
<tr>
<td>Session 4</td>
<td>Psychological accommodation of intergroup communication</td>
<td>training to develop accommodative (i.e., adaptive) practices for intergroup and interpersonal communications and actualize the MC principles learned previously</td>
<td>Pinazo &amp; Breso (2017); Gallois, Ogay, &amp; Giles, (2005); Hewett et al., (2009)</td>
<td>Listen to your body and react to experiences; explanation of adaptive/accommodative strategies; accommodation strategies for intergroup communication</td>
<td>Group Salience, Relationship Building, and Stress Reduction</td>
</tr>
<tr>
<td>Session 5</td>
<td>Behavior tactics to promote intergroup communication: Aversion or Collusion</td>
<td>Recognize aversion or collision among group members, enact purposeful and mindful communications, acknowledge intergroup and interpersonal dynamics, and identify professional norms or values at play during communications (e.g., stress)</td>
<td>Pinazo &amp; Breso (2017); Gallois, Ogay, &amp; Giles, (2005); Skorikov &amp; Vondracek (2013); Pettigrew (1998)</td>
<td>Awareness of emotions and their effect, complaints; explanation of aversion or collision in intergroup communication; intergroup salience; group salience</td>
<td>Group Salience and Stress Reduction</td>
</tr>
<tr>
<td>Session 6</td>
<td>Behavior tactics to promote intergroup communication: Interprofessional Norms and Values</td>
<td>Recognize aversion or collision among group members, enact purposeful and mindful communications, acknowledge intergroup and interpersonal dynamics, and identify professional norms or values at play during communications (e.g., stress)</td>
<td>Haslam &amp; Ellemers (2011); Pinazo &amp; Breso (2017); Gallois, Ogay, &amp; Giles, (2005); Epstein (1999)</td>
<td>Professional identity norms and values; Attitude of compassion and gratitude; explanation of behaviors to promote intergroup communication; physician norms and values (p. 836); professional knowledge (p. 834);</td>
<td>Group Salience, Relationship Building, and Stress Reduction</td>
</tr>
<tr>
<td>Session 7</td>
<td>Perceptions/Attributions of using intergroup communication strategies</td>
<td>Enhanced awareness of intergroup history and dynamics, improved present moment awareness, attenuation of intergroup bias or stereotyping, heightened appreciation for MCs, and perceived stress reduced</td>
<td>Pinazo &amp; Breso (2017); Gallois, Ogay, &amp; Giles, (2005); Pettigrew (1998); Kang, Gray, &amp; Dovidio (2014)</td>
<td>Awareness of judgements and mind control; explanation of perceptions/ attribution of intergroup strategies; in/out-group bias and stereotyping; intergroup bias reduction strategies</td>
<td>Group Salience and Stress Reduction</td>
</tr>
<tr>
<td>Session 8</td>
<td>Evaluation/ Future Intentions on an intergroup communication strategy</td>
<td>Successful in mindful communications with other specialties, continuation of MC with all intergroup members, enriched coordination of care for patients, realization of sociohistorical lens impact to MC, and intent to continue MC to alleviate professional norms and values (e.g., stress)</td>
<td>Pinazo &amp; Breso (2017); Gallois, Ogay, &amp; Giles, (2005); Hewett et al., (2009); Beckman et al. (2012)</td>
<td>Personal responsibility and recap; explanation of evaluation/ future intentions; strategies to promote future intentions on intergroup communication; applying mindful communication for evaluations on intergroup dynamics/interactions</td>
<td>Group Salience, Relationship Building, and Stress Reduction</td>
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</tbody>
</table>
## Appendix F

### Logic Model

<table>
<thead>
<tr>
<th>Inputs/Resources</th>
<th>Activities</th>
<th>Outputs</th>
<th>Audience Reached/Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated program funding of $2500 required</td>
<td>Identify a funding source (self)</td>
<td>Physicians</td>
<td></td>
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<tr>
<td>Technology resources (Audacity, Camtasia)</td>
<td>Create 8 self-paced modules</td>
<td>Nurses</td>
<td></td>
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<tr>
<td>Participant pipeline</td>
<td>Learn the hosting platform and upload 8 modules</td>
<td>Nurse Practitioners</td>
<td></td>
</tr>
<tr>
<td>Platform for hosting (LearnWorlds learning management system [LMS])</td>
<td>Participants engage in 8 self-paced modules</td>
<td>Patient Care Technicians</td>
<td></td>
</tr>
<tr>
<td>Baseline reporting (perceived stress Survey, communication Survey)</td>
<td>Review weekly participation report</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Obtain contact hours for program</td>
<td></td>
<td></td>
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<tr>
<td>8-one hour, self-paced modules</td>
<td>Conduct pre- and post-program evaluation using the PSS and communication surveys</td>
<td></td>
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<table>
<thead>
<tr>
<th>Short</th>
<th>Outcomes/Impact</th>
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</thead>
<tbody>
<tr>
<td>Recognition of intergroup dynamics</td>
<td>Development of cross-specialty partnerships</td>
</tr>
<tr>
<td>Generation of cross-specialty communication (forced)</td>
<td>Reduction of perceived stress</td>
</tr>
<tr>
<td>Initial stress reduction education</td>
<td>Generation of cross-specialty communication (non-forced)</td>
</tr>
<tr>
<td>Realization and/or acceptance of awareness and present moment benefits</td>
<td>Utilization of awareness and present moment techniques (prompted and unprompted)</td>
</tr>
<tr>
<td>Lower perceived stress/burnout scores</td>
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</table>

<table>
<thead>
<tr>
<th>Assumptions</th>
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<tr>
<td>Healthcare organizations will accept this type of program</td>
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<tr>
<td>Clinician engagement and communication impact patient outcomes and coordinated care</td>
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<tr>
<td>Clinicians will make time to go through the program</td>
</tr>
<tr>
<td>Participant adherence to program and/or program completion</td>
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</table>

<table>
<thead>
<tr>
<th>External Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluctuations in healthcare</td>
</tr>
<tr>
<td>Physician/Participant time constraints</td>
</tr>
<tr>
<td>Healthcare skepticism about autogenic training (e.g., mindfulness meditation)</td>
</tr>
<tr>
<td>Corporate and academic outlook on physician engagement strategies and anticipated outcomes</td>
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<tr>
<td>Pandemic</td>
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## Appendix G

### Process Evaluation Matrix: Primary Program Evaluation Questions

<table>
<thead>
<tr>
<th>Process Evaluation Question</th>
<th>Process Evaluation Indicator(s)</th>
<th>Data Source(s)</th>
<th>Data Collection Tool</th>
<th>Frequency</th>
<th>Data Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>What was the average amount of time participants spent in the sessions and how many sessions were completed?</td>
<td>LMS report</td>
<td>Clinicians</td>
<td>The research assistant will pull LMS reports and export to Microsoft Excel</td>
<td>Weekly</td>
<td>Descriptive statistics</td>
</tr>
<tr>
<td>What are some reasons that prevent participants from completing a professional development program for clinicians?</td>
<td>Satisfaction survey responses, interviews</td>
<td>Clinicians</td>
<td>Satisfaction survey 5-Point Likert Scale (1=Not Applicable at All; 5=Very Applicable) 1. How would you rate the applicability of the program to your role? 2. How would you rate the applicability to daily activities involving intergroup communications? 3. How would you rate the preference of using a self-paced method instead of live, face-to-face meetings? 5-Point Likert Scale (1=I Prefer Face-to-Face; 5=I Prefer Self-Paced) 4. What types of barriers may prevent you or another participant to enter the program? (open text) 5. What types of barriers may prevent</td>
<td>Collected post-completion and reported on a weekly basis</td>
<td>QUAN: Descriptive statistics  QUAL: A priori and Emergent coding Categories Themes MM: Merge QUAN and QUAL data Develop new codes, patterns, and themes</td>
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</table>
you or another participant from completing the program? (open text)

Interview Questions

Q3. Recruitment for the existing self-paced course modules has been challenging with the clinician population. What do you think could be causing that? How to mediate that challenge?

<table>
<thead>
<tr>
<th>What delivery method do participants prefer to provide quality professional development for clinicians?</th>
<th>Satisfaction survey responses, Interviews</th>
<th>Clinicians</th>
<th>Collected post-module completion and reported on a weekly basis</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>QUAN: Descriptive statistics</td>
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<td></td>
<td></td>
<td></td>
<td>QUAL: Emergent coding</td>
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<td>Categories</td>
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<td>Themes</td>
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<td></td>
<td></td>
<td>MM: Merge</td>
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<td></td>
<td></td>
<td></td>
<td>QUAN and QUAL data</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Develop new codes, patterns, and themes</td>
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</table>
Interview Questions
Q1. When thinking about a professional development program for clinicians focused on three core components of communication, relationship building, and stress reduction, what type of content do you find to be most useful? For instance, infographics, one-pagers, video, anything else you can think of? As a follow-up, would there be different types of content for each component?
Q2. How do you think that content would best be relayed to a clinician audience? For instance, self-paced courses, live instructor led sessions with a small group, large conferences, etc.

Note: LMS=Learning Management System; QUAN=Quantitative; QUAL=Qualitative; MM=Mixed Methods.

Appendix H

Outcome Evaluation Matrix: Primary Intervention Research Questions
<table>
<thead>
<tr>
<th>Outcome Evaluation Question</th>
<th>Construct</th>
<th>Data Source(s)</th>
<th>Data Collection Tool</th>
<th>Frequency</th>
<th>Data Analysis</th>
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</thead>
<tbody>
<tr>
<td>How does a clinician’s group salience influence their interprofessional communication with other clinicians?</td>
<td>Intergroup communication</td>
<td>Clinicians</td>
<td>Communication Survey Protocol (Beckman et al., 2012)</td>
<td>Collected pre-and post-program completion</td>
<td>QUAN: Descriptive statistics</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>1. In what ways did the Mindful Communication program influence how you behaved outside of the workplace, such as self-care, work–home balance, etc.?</td>
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<td>2. In what ways did the Mindful Communication program affect how you interact or relate with patients, peers, or others?</td>
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<td></td>
<td>12 Goals of Communication Accommodation Theory (CAT) Survey (adapted from Watson &amp; Gallois, 1998) Open-response options after each question/phrase. Attend to Relationship Needs</td>
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<td></td>
<td>1. Encourage the peer physician to ask questions.</td>
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<td>2. Get to know the peer</td>
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</table>
physician as an individual.

3. Understand the peer physician’s concerns.

4. Develop a good relationship with the peer physician.

Attend to Emotional Needs

5. Acknowledge and reduce the peer physician’s anxiety.

6. Reassure the peer physician.

Attend to Physician’s Communicative Competence

7. Obtain information from the peer physician.

8. Listen to the peer physician.

Attend to Role Relationship


10. Ensure peer physician understands medical
notes and/or diagnosis information.

11. Put across own point of view and consider peer physicians.

12. Explain specialty-specific information that may be relevant to patient transfer.

Interviews

Q1. When thinking about a professional development program for clinicians focused on three core components of communication, relationship building, and stress reduction, what type of content do you find to be most useful? For instance, infographics, one-pagers, video, anything else you can think of? As a follow-up, would there be different types of content for each component?

Q2. How do you think that content would best be
relayed to a clinician audience? For instance, self-paced courses, live instructor led sessions with a small group, large conferences, etc.

Q3. Recruitment for the existing self-paced course modules has been challenging with the clinician population. What do you think could be causing that? How to mediate that challenge?

Q4. The original Mindful Communication program contained aspects of mindfulness. In your experience, what else could be a benefit for clinicians to help them activate education or professional development concepts like communication, relationship building, and stress reduction? For example, how have you experienced activation of concepts after a professional development course?
Q5. If you can think of someone who you’ve had a challenging professional relationship with, how have you experienced relationship building, communication and stress when it comes to managing a professional relationship with someone you find to be difficult or challenging? As a follow-up, I’m interested to know the relationship of this person to you. Was it a colleague in the same specialty or department, or from a different specialty or department?

What aspects of a clinician’s social identity influences their perceived stress?  

Perceived stress  

Clinicians  

Perceived Stress Scale (PSS) Survey (Cohen, Kamarck, & Mermelstein, 1983)  

Note: * denotes reverse scoring  

5-Point Likert Scale (1=Never; 5=Very Often)  

1. In the last month, how often have you been upset because of something that happened unexpectedly?

Quantitative data collected pre- and post-program completion  

Qualitative data collected during program  

QUAN: Descriptive statistics  

QUAL: Emergent coding Patterns  

Themes
2. In the last month, how often have you felt that you were unable to control the important things in your life?
3. In the last month, how often have you felt nervous and "stressed"?
4. In the last month, how often have you dealt successfully with irritating life hassles?
5. In the last month, how often have you felt that you were effectively coping with important changes occurring in your life?
6. In the last month, how often have you felt confident about your ability to handle your personal problems?
7. In the last month, how often have you felt that things were going your way?
8. In the last month, how often have you found that you could not cope with all the things that you had to do?
9. In the last month, how often have you been able
to control irritations in your life?
10. In the last month, how often have you felt that you were on top of things?
11. In the last month, how often have you been angered because of things that happened that were outside of your control?
12. In the last month, how often have you found yourself thinking about things that you have to accomplish?
13. In the last month, how often have you been able to control the way you spend your time?
14. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?

PSS open-ended questions include:
1. How would you describe your current level of stress related to interprofessional relationships?
2. How would you describe stress
related to your current role?

3. How would you describe the stress of care coordination, or interacting with other physicians to mediate care for a patient?

Interviews

Q1. When thinking about a professional development program for clinicians focused on three core components of communication, relationship building, and stress reduction, what type of content do you find to be most useful? For instance, infographics, one-pagers, video, anything else you can think of? As a follow-up, would there be different types of content for each component?

Q2. How do you think that content would best be relayed to a clinician audience? For instance, self-paced courses, live instructor led sessions with a small group, large
Q3. Recruitment for the existing self-paced course modules has been challenging with the clinician population. What do you think could be causing that? How to mediate that challenge?
Q4. The original Mindful Communication program contained aspects of mindfulness. In your experience, what else could be a benefit for clinicians to help them activate education or professional development concepts like communication, relationship building, and stress reduction? For example, how have you experienced activation of concepts after a professional development course?
Q5. If you can think of someone who you’ve had a challenging professional relationship with, how have you
How does a clinician’s group salience influence their relationship building with other clinicians?

<table>
<thead>
<tr>
<th>Relationship Building</th>
<th>Clinicians</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 Goals of Communication Accommodation Theory (CAT) Survey (adapted from Watson &amp; Gallois, 1998)</td>
<td>6-Point Likert scale ($1=Not Important at All; 6=Very Important$)</td>
</tr>
</tbody>
</table>

Attend to Relationship Needs

1. Encourage the peer physician to ask questions.
2. Get to know the peer physician as an individual.
3. Understand the peer

experienced relationship building, communication and stress when it comes to managing a professional relationship with someone you find to be difficult or challenging? As a follow-up, I’m interested to know the relationship of this person to you. Was it a colleague in the same specialty or department, or from a different specialty or department?
4. Develop a good relationship with the peer physician.

Attend to Emotional Needs

5. Acknowledge and reduce the peer physician’s anxiety.
6. Reassure the peer physician.

Attend to Physician’s Communicative Competence

7. Obtain information from the peer physician.
8. Listen to the peer physician.

Attend to Role Relationship

10. Ensure peer physician understands medical notes and/or diagnosis information.
11. Put across own point of
view and consider peer physicians.

12. Explain specialty-specific information that may be relevant to patient transfer.

Interviews

Q1. When thinking about a professional development program for clinicians focused on three core components of communication, relationship building, and stress reduction, what type of content do you find to be most useful? For instance, infographics, one-pagers, video, anything else you can think of? As a follow-up, would there be different types of content for each component?

Q2. How do you think that content would best be relayed to a clinician audience? For instance, self-paced courses, live instructor led
sessions with a small group, large conferences, etc.

Q3. Recruitment for the existing self-paced course modules has been challenging with the clinician population. What do you think could be causing that? How to mediate that challenge?

Q4. The original Mindful Communication program contained aspects of mindfulness. In your experience, what else could be a benefit for clinicians to help them activate education or professional development concepts like communication, relationship building, and stress reduction? For example, how have you experienced activation of concepts after a professional development course?

Q5. If you can think of someone who you’ve had a challenging professional
relationship with, how have you experienced relationship building, communication and stress when it comes to managing a professional relationship with someone you find to be difficult or challenging? As a follow-up, I’m interested to know the relationship of this person to you. Was it a colleague in the same specialty or department, or from a different specialty or department?
Appendix I

Theory of Treatment

Components
- Information on sociohistorical awareness
- Knowledge on intergroup and interpersonal communication and present awareness techniques
- Development of accommodative / adaptive practices for intergroup communication
- Learn behavior tactics to promote intergroup communication
- Identifying perceptions/attributions of using intergroup communication strategies
- Development of evaluation/future intentions for intergroup communications

Causes
- Recognize historical group and interpersonal dynamics
- Being more skillful at present-moment awareness techniques
- Being more skillful at speaking and interacting with other physicians
- Apply present moment-awareness techniques to daily tasks involving other physicians
- Develop an enhanced awareness of intergroup history and dynamics
- Reflect on how historical communication has impacted communication

Causes
- Reduction in intergroup biases and discrimination
- More aware interactions with other physicians
- Increase in patient-focused dialogue
- Identify interprofessional norms and values, then adjust communication as necessary
- Being more aware of how communication can impact the interprofessional relationship
- Develop an intention to continue developing behaviors that facilitate interprofessional interactions

Outcomes
- Reduce healthcare costs
- Reduce near misses
- Increase cross-specialty communication
- Increase interprofessional engagement
- Reduce time between referrals and/or transition of care
- Reduce perceived stress
- Increased awareness and acceptance of present moment
Appendix J

Mindful Communication Program Intervention Recruitment Materials

Email Recruitment Language:

Email Subject: Request to Participate in Mindfulness Study

Email Body:

Dear [insert name],

My name is Haley Harbaugh and I am an EdD candidate at Johns Hopkins University. I am writing to invite you to participate in my student research study, as part of my EdD candidate work, about mindful communication and relationship building. You're eligible to be in this study because you are a clinician. I obtained your contact information from the [university] website.

If you decide to participate in this study, you will participate in an eight-session program comprised of self-paced modules and surveys. The modules offer information and activities related to mindful communication practices. The surveys seek to understand your perceived stress levels, communication with peers, and satisfaction with the course.

Remember, this is completely voluntary. You can choose to be in the study or not. If you'd like to participate or have any questions about the study, please email or contact me at hharbau1@jh.edu.

Thank you very much.

Sincerely,

Haley R. Harbaugh
Email Recruitment Language for Contact Hours:

Email Body: Hello - I am a doctoral candidate at Johns Hopkins University trying to finish my dissertation and in the recruitment process for my intervention. I created a Mindful Communication program for clinicians, and I am approved to provide 3.5 contact hours for nurses who complete the program. Do you have any sort of nursing alumni email that you send where you could provide my study information for any prospective participants? Below are the details about the study and how to access. Thank you and please let me know if you have any questions!

Access the study and courses here: https://lnkd.in/evDfH-Y

The purpose of this student research study is to examine the relationship between mindful communication and the perceived effects on relationship building, stress, and communication amongst clinicians.

To participate in this research, you must be a clinician (physician, nurse, physician extender, etc.).

Participation in this study involves 8 self-paced modules, which are less than 1-hour time commitment per module.

Questions or comments? Please contact the Principal Investigator, Haley Harbaugh, at hharbau1@jh.edu.

This nursing continuing professional development activity was approved by the Emergency Nurses Association, an accredited approver by the American Nurses Credentialing Center’s Commission on Accreditation.
The purpose of this student research study is to examine the relationship between mindful communication and the perceived effects on relationship building, stress, and communication amongst clinicians.

To participate in this research, you must be a clinician (doctor, nurse, etc.).

Participation in this study involves a less than 1-hour time commitment per week, for a total of 8 weeks. Click the link under this banner to enroll in the study.

Questions or comments? Please contact the Principal Investigator, Haley Harbaugh, at hharbau1@jh.edu.

This nursing continuing professional development activity was approved by the Emergency Nurses Association, an accredited approver by the American Nurses Credentialing Center’s Commission on Accreditation.
Appendix K

Interview Recruitment Communication

Email Recruitment Language

Email Subject: Interview Request: Professional Development Study Design

Hello – I contacted you several months ago about participation in a Mindful Communication program and I am now conducting interviews as part of my student research study (due to low completion of the original program). The interview is 45-minutes consisting of 5 questions related to communication, relationship building and stress in clinicians. My goal in conducting the interviews is to understand participation in and how to design a professional development program for clinicians. Would you be willing to participate in the interview?

Haley R. Harbaugh

Disclaimer: This is completely voluntary. You can choose to be in the study or not. If you'd like to participate or have any questions about the study, please respond to this email.
Appendix L

Mindful Communication Program Participant Demographic Survey

By completing this survey, you are consenting to be in this research study. Your participation is voluntary and you can stop at any time.

* Required

Please select your gender.
- Female
- Male
- Prefer not to say

Please type your age.
Your answer

Please type your medical specialty. (If you are not a physician, please type your clinical profession into this field.)
Your answer

Please select your geographic area (select all that apply).
- Urban
- Rural
- Suburban

Please enter a unique 4-digit identifier (For example, two digit birth month and two digit birth year [0175]). You will continue to use this throughout the program to act as a unique participant code.
Your answer
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1031(91)90002-N
