DISSERTATION

UNDERREPRESENTED MINORITY MEDICAL (URiM) STUDENTS: A SOCIAL WORK APPROACH TO IDENTIFYING FACTORS AFFECTING THEIR EXPERIENCE

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ABSTRACT

UNDERREPRESENTED MINORITY MEDICAL (URiM) STUDENTS:

A SOCIAL WORK APPROACH TO IDENTIFYING FACTORS AFFECTING THEIR EXPERIENCE

A major injustice in the United States is the wide disparity in health care across racial/ethnic, gender and economic lines. The lack of URiM (underrepresented in medicine) physicians is a major cause of health care disparities: health care is enhanced when the physician is race-concordant with the patient. Many URiM students have negative experiences that can impact their motivation, performance, well-being and future careers. The major goal of this research is to gain an understanding of URiM student experience as a basis for changes within the student's Ecosystem. Using a social work approach and thematic analysis to gain a better understanding of the URiM experience at the University of Colorado School of Medicine (CU SOM), four themes emerged: (a) Overall Experience: URiM experience is multifactorial, reflecting positive, negative and ambivalent experiences and can change through time. (b) Impacts of Explicit Racism, Microaggressions and Low/Insufficient Diversity. (c) Negative Impact of Incongruence: URiM students expressed dissatisfaction at the incongruence between the medical school messaging about valuing diversity and the reality experienced by the students. (d) Sense of Belonging: multifactorial and dynamic: It is a significant factor in student experience, has multiple meanings for the students, and can change through time. In addition to the above four themes, one key result is a new definition of Sense of Belonging. Student recommendations combined with the researcher's experience were used to generate implications

for programs and student support services. These results can be used to inform program

development, coaching, advising and system level improvements. This will achieve the research goal of improving the experiences of URiM students and thus potentially their motivation, performance, well-being and future careers.

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Philippians 4:13 *I can do all things through Christ who strengthens me.*

DEDICATION

Soli Deo Gloria

To God Our Father

In Honor of My Beloved Heavenly Angel, Michael Richards

With Deepest Gratitude

To My Village

To My Parents, My Children, My Fiancé, My Entire Family and Friends

Without each of you I could not have begun, endured and successfully completed this stage of my life's journey, which includes this PhD!

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CHAPTER 1: INTRODUCTION

A major injustice in the United States is the wide disparity in health care across racial/ethnic, gender and economic lines (NAS, 2000). Foster (1996) provides historical context of disparities in educational access for under-represented minorities:

> Access to educational opportunities for underrepresented minorities was truncated by oppressive laws maintained by a legacy of racial prejudice emanating from the fabricated myth of racial supremacy (p.17).

One direct effect of factors associated with lack of educational access for African Americans and Mexican Americans is a system of structural racism. These groups are also characterized as "vulnerable populations" (Sheafor, Morales & Scott, 2012). Medical education suffers from the same processes of structural racism and of systems contributing to health disparities resulting in poor health outcomes for vulnerable populations.

When working with vulnerable populations, other elements to consider are psychosocial factors in their ecosystem. These require understanding the historical and cultural context of individuals (Sheafor et al., 2012). Cultural context includes cultural values, belief systems, ethnicity, lifestyle and societal norms. Historical context also includes historical roots and heritage and positive and negative experiences in both country of origin and in the United States. This includes the duration of those experiences, age at which experiences occurred, and how the individuals have been affected by those experiences (Sheafor et al., 2012, pg. 8).

Using the Ecosystems Model to Understand the Historical Context of This Study

Laws and policies began to emerge in the US to mitigate educational inequities. Despite major policies to legally address education inequalities, "*de facto* inequities continued to persist especially in inner cities" (Foster, 1996).

This dissertation focuses on certain factors associated with inequities in medical education. Since 1961, the AAMC (American Association of Medical Colleges) has been a leader in bringing awareness and advocacy as well as addressing policies focused on increasing parity for underrepresented minorities in medical education (Hutchins, 1961; Foster, 1996). However, to-date those policies and programs have failed to increase the parity in medical education.

This study takes a social work approach in looking at URiM student experience in medical education. Social workers are trained in solution-focused practices and in systems theory, which allows them to break down complicated problems. A social work approach requires that all people must be seen in their capacities of 'what they know and what they can do' (Saleebey, 1996). This requires looking at the 'whole person' and the systems that directly impact their well-being. The strengths-based approach, a key theoretical framework social workers are trained in, leads to solution-focused practices when analyzing complex issues affecting individuals, families/communities and other structural systems.

Sheafor et al. (2012) argues that when social workers who are working with special population groups (vulnerable populations) using the conceptual tool provided by the ecosystems model, they intervene at the micro- and macro- levels, attending to both the person and the environment. Assessing and identifying biological (environmental), psychological (individual), sociological (family), cultural and historical factors is needed to understand the client's situation and what should be done. For the purposes of this research study, the ecosystem model dissects the factors affecting each URiM medical student experience and how those domains relate directly to their positive and/or negative experiences as defined by each student. This theoretical model is further defined in Chapter 2.

This qualitative exploratory study was conducted by me, a trained social worker, positioning me to integrate a social work perspective to collect and analyze qualitative data, and make recommendations based on themes identified for areas potentially leading to improvements to educational experiences for URiM students specifically.

According to the 2005 National Health Disparities Report, racial/ethnic minorities and the poor consistently have diminished access to care and receive lower quality care than white and higher-income Americans (Kelley, Moy, Stryer, Burstin, & Clancy, 2005). Over a decade ago, the Institute of Medicine (2003) identified the factors associated with health disparities as *social determinants of health*. These include the lack of education, employment, adequate income, food security, a safe environment and community structure.

The lack of URiM (underrepresented in medicine) physicians is a major cause of health care disparities: health care is enhanced when the physician is race-concordant with the patient (Betancourt, Green, Carillo & Ananeh-Firempong, 2003). In 2016, the American Association of Medical Colleges (AAMC) reported the percentages of accepted U.S. medical school applicants by race and ethnicity in 2014–2015 (AAMC, 2018). The percentage of accepted White applicants was 51.2%. Asians and Hispanic/Latino accepted applicants were 42%. Black or African American accepted applicants was 6.4% (down from 7.8%). Other applicants including those whose race and ethnicity was reported as unknown was 0.4%. (This includes American Indian/Alaskan Native, 0.002% and Native Hawaiian or Pacific Islanders, 0.0007%).

A disturbing number of URiMs in predominantly white medical schools report a range of negative experiences often leading to psychological distress, reduced motivation and deficiencies in academic performance (Freeman, Landry, Trevino, Grande & Shea, 2016). These negative experiences result in part from the lack of racial and ethnic diversity in medical schools. There

are additional sources of negative experiences that have been identified in this dissertation that can be improved by policy, program and interventional changes. The long-term goal of this research is to contribute to the mitigation of these negative experiences by documenting the experiences of a sample of URiM students at the University of Colorado School of Medicine (hereafter, CU SOM). This information can then be used to inform changes to individual experiences and at the institutional level.

The LCME (Liaison Council on Medical Education), the accreditation board, requires in Standard IS-16 that medical schools have a diverse and inclusive environment:

> …. Aspiring future physicians will be best prepared for medical practice in a diverse society if they learn in an environment characterized by, and supportive of, diversity and inclusion. Such an environment will facilitate physician training in basic principles of culturally competent health care; recognition of health care disparities and the development of solutions to such burdens; the importance of meeting the health care needs of medically underserved populations; [and] the development of core professional attributes (e.g., altruism, social accountability) needed to provide effective care in a multidimensional diverse society (LCME, 2013, p.6).

This standard set by the LCME demonstrates the importance of the issue of a diverse and inclusive environment for medical schools nationwide (Doyle, 2009).

Whitla et al. (2003) and Hung et al. (2007) reported that valuing diversity should be an integral component of education. More importantly, previous researchers (Guiton, Chang & Wilkerson, 2007) found that medical students educated as part of a diverse student body report they are better able to work with patients of diverse backgrounds. In addition, diversity has been shown to enhance problem solving and innovative thinking in all students (Guiton et al., 2007).

Diversity will also increase exposure to varying motivations for a medical career such as serving the community, a goal more commonly reported by URiM students than by majority-race students (Guiton et al., 2007). Exposure to other perspectives and experiences assist with broadening one's awareness about other's cultures, cultural norms and traditions and lived experiences. This helps to reduce the burden of the minority tax on historically oppressed marginalized and vulnerable populations. Velez et al. (2012) state:

> In working with special population groups, once a sound knowledge base is established through a use of a conceptual tool such as the ecosystem model, the social worker is pointed toward intervening at both the micro and macro intervention levels – attending to both the person and the environment (p.7).

Medical and social work professions are service-related fields requiring professionals to have knowledge and skills when serving clients. This requires gathering information and assessment skills to understand the client's situation and their needs. This includes understanding past and present information and any factors about the client's environment directly impacting their situation. (Velez et al., 2012).

Ethical Reasons for Improving Student Experience

In addition to practical reasons for improving student experience, there is the simple premise of medicine's obligation to humanity and social justice. Roy Wilson, President of Wayne State University and incoming President of the AAMC, recently stated that "be good to medicine and it will be good to you" (AAMC Learn, Serve and Lead, 2018). His explanation of that metaphor included the imperative of valuing diversity and eliminating biases and their impact on decision-making processes. For example, unconscious bias in admissions practices can limit the pool of qualified

applicants based on race and ethnicity, gender, sexual orientation or other demographic factors. Additionally, unconscious bias also impacts medical schools, residencies, faculty composition and other areas that impact training programs, as well as mission-based delivery of high quality of education and care (Graham, Graham & West 2016; AAMC, 2018).

In valuing diversity and inclusion, the ethical principles of practice in both medicine and social work purpose are demonstrated. Those practice principles are service, social justice, integrity, competence, trustworthiness and respecting the inherent dignity and worth of a person. These are core values of professionalism within the context of the human experience (Loewenberg, Dolgoff & Harrington, 2000).

A final ethical basis for this research lies in the obligation and calling of all social workers to reduce pain and suffering and to enhance every individual's ability to realize their potential (Loewenberg et al., 2000). This principle informs this research.

The Theoretical Framework: A Social Work Approach

A social work approach combines identifying what the problems are, and how those are influenced by factors that affect an individual's behavior. In the present research, this requires using three theories, Systems Theory, Ecosystems Theory and Sense of Belonging as the theoretical framework to dissect issues related to URiM student experiences at CU SOM.

Systems Theory

The highest level approach is Systems Theory. von Bertalanffy (1967) describes the systems theory framework as "views individuals and environments as constantly interacting with and adapting to one another in a series of 'interconnected transactional networks'" (Mattaini & Meyer, 2002, p.16). Systems theory takes into account the influences of the institutional level,

interpersonal level and individual levels on a person's psychosocial well-being. In my research the CU SOM is the *institutional* level. The *interpersonal* level is the interactions of the person in the community environment. The *individual* level includes how the individual responds to the first two levels. In the case of this research, I am examining Sense of Belonging and if it impacts student's experiences at CU SOM.

Ecosystems Theory

Ecosystems theory requires a focus on factors such as person-in-environment, the universal need to belong and the influence of the ecosystem on all aspects of a person's experience. Bronfenbrenner's (1979) and Sheafor et al. (2012) describe the ecological model of human development as containing the various systems that affect an individual's life. These are represented as concentric circles: microsystems (individual, family, peers, neighbors); (interpersonal relationships such as community) and macrosystems (institutions, socioeconomic, political, religious and education influences). This is needed to understand the client's situation and what should be done.

Sense of Belonging

Sense of Belonging is one aspect of the Individual level approach of Systems Theory. In this proposed research, behavior is treated as a function of the person's present and past environment. Sense of Belonging is also grounded in social work and embedded in social work core values. Hagerty et al. (1992) posits that a Sense of Belonging has two defining attributes: 1) the experience of being valued, needed or important with respect to other people, groups or environments, and 2) the experience of fitting in or being congruent with other people, groups or environment through shared or complementary characteristics. These lead to a model of Sense

of Belonging as a psychological experience associated with affiliative behavior and psychological and social functions (Hagerty, 1996).

Hagerty, Williams, Coyne and Early (1996) defined Sense of Belonging as "the experience of personal involvement in a system or environment so that people feel themselves to be an integral part of that system or environment." For the purpose of this research study, I will be exploring what factors contribute to URiM student experiences in CU SOM. The literature review in Chapter 2 introduces the development of this concept and its use in understanding student experiences. Based on my results, I have been able to give a more precise and comprehensive definition of Sense of Belonging. This appears in Chapter 4.

The results from this research study can be used in future work designing programming to increase the medical student's acclimation to the culture of their institution. This can potentially increase recruitment, admissions and retention rates. Prior anecdotal observations over a decade by this researcher suggests that positive student experiences could increase student motivation, academic preparation and performance in both qualifying exams and coursework (Richards, pilot observations). Ultimately, students will be better positioned to obtain residencies of their choice and become mentors to the next generation of URiM students.

Hurtado's Conceptual Framework

A complete review of the literature is given in Chapter 2. Here I give a conceptual framework from Hurtado, a leading researcher on URiM student experiences in undergraduate education. This framework provides a logic model that maps factors contributing to outcomes. The outcome of psychological sense of integration depends in part on Sense of Belonging as a predictor for students' transitioning and adjusting to college. This is consistent with my

observations in coaching and advising sessions, which also suggested a key role for Sense of Belonging for URiM students at CU SOM.

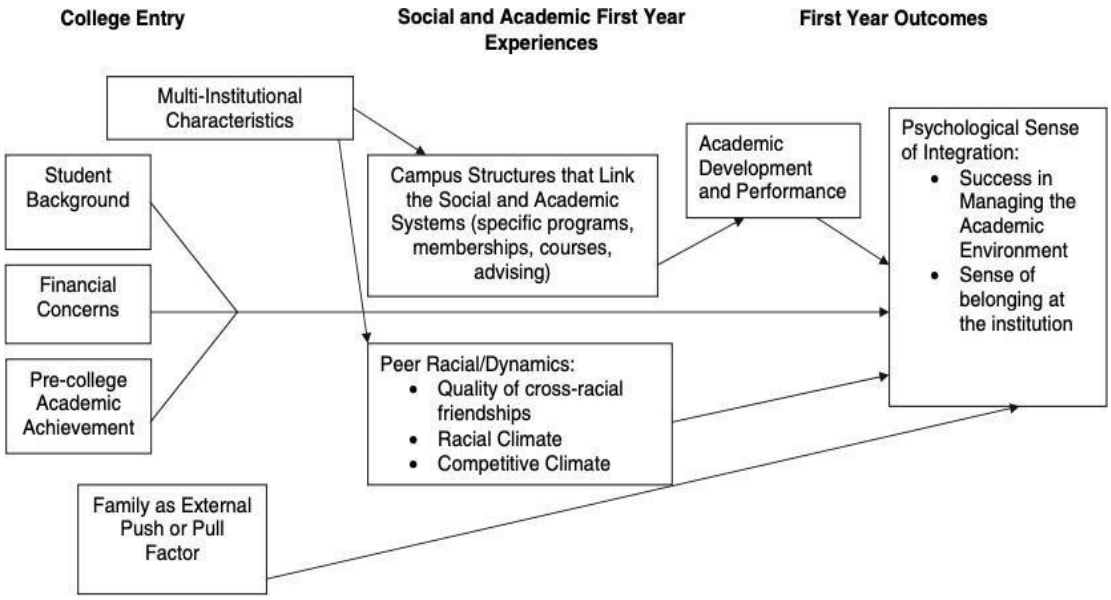

Figure 1.

Preliminary Conceptual Model Guiding the Study.

Reproduced from "Predicting Transition and Adjustment to College: Biomedical and Behavioral Science Aspirants' and Minority Students' First Year of College," by S. Hurtado, et al., 2007, *Research in Higher Education, 48,* p. 848.

The conceptual framework of Hurtado et al. (2007) suggests a guide for future research into the multiple factors influencing URiM student experiences. This type of model incorporates Sense of Belonging under First Year Outcomes: Psychological Sense of Integration.

These factors informed the construction of the interview questions given in full in Appendix E. They suggested the inclusion of the following items in the questionnaire: support systems, interactions with peers and faculty, climate and culture, effects of racism, the suggestion of the role of Sense of Belonging on student experiences and student interactions with

and navigation of elements of the academic system. Hurtado's model was combined with a social work approach, specifically Ecosystems Theory, to structure this research.

Contributors to Negative Experiences: Prior Observations at CU SOM

Contributors to URiM students' negative experiences in medical school are suggested by my prior coaching/advising observations. In addition is my recall of conversations with multiple students over time as required in my position as the Director, Office of Diversity and Inclusion. These anecdotal reports include experiences of incidents of racism and discrimination (including gender and/or sexual orientation) occurring in certain problem-based learning groups or lectures, labs or on the medical school campus. Students also report systems failures and psychosocial contributors or a combination of both.

These coaching/advising conversations suggested themes that might be contributors to negative experiences: family demands and responsibilities, lack of peer support and social life, financial concerns, fatigue due to academic demands, learning difficulties, difficulties accessing tutoring or other learning resources, self-perceptions of academic incompetence and lack of capacity compared to peers. Missing or inadequate mentors and career advising are also common causes of distress. A major psychosocial contributor is *structural racism* manifested as unconscious bias, discrimination, impostor syndrome, stereotype threat, and so called racial and gender battle fatigue. These can, alone or combined, diminish Sense of Belonging in the medical school.

Most recently, students have expressed the need for changes in the current curriculum that would provide integration of topics that are more inclusive to the changing demographics of the school. Prior coaching/advising conversations suggest that a curriculum structure that front-loads basic sciences and is exceptionally difficult can lead to loss of motivation in all students. In

addition, the lack of other relevant subjects related to URiM's interest may also contribute to a loss of motivation. For example, Thomas (2011) indicates that subjects such as community service learning are rarely integrated into the curriculum.

The value of proactively accessing student resources such as tutoring is not adequately emphasized (Richards, pilot observation). In addition, URiM students request and appreciate courses and training on bias (Richards, pilot observation): this makes clear that these services should be an essential part of the structure of the medical education at the CU SOM, as has been shown at other medical schools (Graham, Graham & West, 2016). Finally, professors may unwittingly discriminate against URiM's and would benefit from anti-bias training (Graham et al., 2016).

The Research Problem

The current research problem arises from pilot work by this researcher and research by others suggesting that many medical students, particularly those from underrepresented minorities, have negative experiences in their programs that impact their motivation, performance and well-being (Freeman et al., 2016). This can further impact their future careers.

This study will use a qualitative interview methodology with thematic analysis to understand the student experience at CU SOM, both academic and non-academic aspects. Prior coaching/advising conversations, described above, suggest that Sense of Belonging is a key but understudied variable. Therefore, this research will have a particular focus on Sense of Belonging with a long-term goal of improving the academic and non-academic experiences of all medical school students.

Need and Significance

It is essential to document the medical school experiences of URiM students if the medical school climate is to be improved for all students. Promoting the well-being and success of URiM students relies on knowledge of all the contributors to their experiences, including systems level and psychosocial factors.

Furthermore, unlike much of the previous research on medical student experience, this work is conducted by a diversity and inclusion professional of eleven years standing, who is trained to take a social work perspective at an institution she knows well. This research is based on years of prior coaching/advising conversations. Its results can be immediately applied to mitigation through advising and counseling and, in the longer term, to structural changes in the medical education program. Finally, the findings of this research can be used to build long-term research programs to further the goals of diversity and inclusion.

Prior pilot observations were made over a period of eight years by this researcher in my position as the Director of the Office of Diversity and Inclusion at CU SOM (Richards, pilot observations). Student narratives suggest the following socio-emotional factors. These factors can be both a cause and a result of lack of Sense of belonging.

- Emotional depletion
- Identity depletion due to identity alteration
- Loss of diminished motivation
- Lack of family support
- Lack of social life
- Discrimination due to race, gender, disability, etc.
- System failures such as delays in obtaining academic support

- Other contributors within the system that are prescriptive and should be addressed using a solution focused approach for the individual (i.e. intervals where students can connect with family or mentors, alterations to the current block schedule, etc.).
- Lack of Sense of Belonging

Several studies summarized in the next chapter and the pilot results of this research have shown that negative experiences in medical school can lead to the following in URiMs: a low sense of belonging; feelings of discrimination, marginalization, and invisibility; lack of confidence that their experiences will be equitable, and lack of connection to their community. These effective results can have serious consequences such as: reduced motivation to continue training at medical school; lowered performance, and ultimately, overall sense of well-being (see Chapter 2). Most seriously, these can combine to detach the URiM student from their goals of service to their community, a commitment shown to be stronger in URMs than in majority students (Thomas, 2011).

Research Questions

This proposal takes a qualitative thematic approach to following three research questions:

1. What are the overall experiences, both academic and non-academic, of a self-selected sample of students from underrepresented minority populations at the CU SOM?
2. What role, if any, does Sense of Belonging have in shaping URiM medical student experience as suggested by the trends in pilot observations?

3. Do students have recommendations for improvements to the learning environment at the individual, interpersonal, institutional and/or the sociocultural levels?

Researcher's Perspective

A solution-based social work approach informs every aspect of the research. This perspective is explained at relevant points throughout the dissertation. The literature review reveals that this approach is rare in medical education.

A second aspect of the perspective is the researcher's belief that qualitative interviewing and detailed knowledge of participants gained by prior association results in an invaluable richness of results. These can also enhance the design of programs that support and contribute to student's success and well-being in ways not possible with a purely quantitative approach.

A third perspective is that of an African American female who has lived experiences of exclusion practices of some institutions and systems. My own race- and gender-based exclusion motivates me to research the effects of lack of Sense of Belonging in students in a graduate program.

A fourth perspective uses the framework of social work interviewing, allowing me to have a clear picture of the student's environment. Initially, I assure students that my office is a "safe space" for them to release their allostatic load and become emotionally transparent. Also, I assure them that "safe space" includes "no judgement." Based on these preliminary observations, students appear to feel a sense of connection with me. I hypothesize that this is due a combination of factors:

- I interact with students in a variety of non-threatening contexts such as:

- Socially - Meet-and-Greet in some capacity at Second Look Day OR attending the medical school residential orientation retreat off campus.
- Academically - With current MSI's (Medical Student's Class of 2022), I facilitated a workshop during First Course, allowing students to identify me as a formal faculty member but not someone who will be grading them or have other power over their progress.
- Co-teacher in the longitudinal elective track - Leadership Education Advocacy Development, Scholarship track (LEADS)
- Mentoring and Coaching - I am the co-mentor advisor for several medical student interest groups such as:
  - Student National Medical Association (SNMA)
  - FirstUp - Mentoring program specifically for first generation students
  - PRISM - Student interest group for LGBTQAI medical students
  - Latino Medical Student Association - LMSA
  - Workshop facilitator or co-facilitator for two pipeline programs to our medical school (BA/BS-MD Program) and Post-Baccalaureate Program.

My training as a social worker has given me the skills, training/knowledge and tools to establish trust and to ask questions that draw out some of the root causes identified by students related to either academic or non-academic concerns.

From the moment students enter my office, I observe them carefully, noting body language and posture, voice, tone, affect and, at times, incoherence due to crying and/or sobbing.

I allow them time and space to regain composure. I then begin asking a series of questions to establish the source of their distress.

Chapter 1 Summary

In this chapter, I have reviewed historical and current contributors to certain aspects of the social determinants of health. I presented the research problem and the need and significance of this research. I've given the three research questions and the theoretical and methodological approach that I took. This supported the choice of a qualitative interview method for this research study: the individual difference in causes of student distress, many unanticipated, would have been lost by most quantitative methods that concentrate on the average experience. Despite this variation, some themes were suggested.

CHAPTER 2: LITERATURE REVIEW

This exploratory study uses several areas of research to develop an understanding of factors that contribute to URiM student experience in medical school. Some of those factors, related to the historical concepts, were presented in Chapter 1 of this dissertation. Additionally, this researcher believes it is equally important to examine the political landscape of the United States and educational access over time.

Political Landscape of the United States over Time and Across Medical School Programs

To better understand the motivation of medical schools to focus on parity of under-represented minorities in medicine (URiM), it is important to examine the political landscape of the United States and educational access over time. Beginning with the historical context of racial and social injustices in America, specifically on how race has contributed to, and continues to contribute to, injustices and disparities in both healthcare and educational access for underrepresented minorities (URM). URM is defined by the National Institute of Health (Merchant & Omary, 2010) as African American/Blacks, Hispanic/Latinos, American Indian/Native Alaskan and Pacific Islanders. This paper includes in the definition of minority, populations from economically and/or educationally disadvantaged backgrounds.

Racism is defined as the subordination of any person or group because of skin color or distinctive physical features. Martin Luther King, Jr., stated, “When people are judged by the color of their skin and not the content of their character that is racism” (van Wormer, 2004, p. 72). Racism against American Indians and African Americans has been well documented and was already prevalent in the United States beginning with slavery in the 16th century. In 1661, slavery became legal in all 13 colonies. Virginia would later declare "Indians, Mulattos, and Negros to be real estate" (Katz, 1996). The Declaration of Independence, signed in 1776, meant

that Africans, African Americans and American Indians in the United States were not considered human beings, only property. The US Constitution and Bill of Rights (1787) did not encompass African Americans or American Indians. Slavery continued until December 1865 with the ratification of the Thirteenth Amendment, which made slavery illegal in the United States.

The Thirteenth Amendment of the United States of America Constitution abolished slavery and made it illegal except for punishment of a crime. After the ratification of the Thirteenth Amendment in November 1865, some southern states continued slavery and passed laws such as Black Codes and Jim Crow. These condoned violence and discrimination from white supremacists (Ginsberg, 1989). Restrictions on black land ownership threatened to make economic subservience permanent.

Slavery allowed the exploitation of Africans, African Americans, American Indians and Mexican Americans for the benefit of whites. Max Weber (van Wormer, 2004, p.22) takes power to mean that one person in a social relationship will be in a position to carry out his own will on another person despite their resistance. In the ratification of the Thirteenth Amendment, slavery would be permitted as a punishment of crime, thereby allowing the continuation of slavery to perpetuate systems of dominance, control and exploitation over groups who were minorities.

Mullaly (van Wormer, 2004, p. 22) defines exploitation as "those social processes whereby the dominant group is able to accumulate and maintain status, power and assets from the energy and labor expended by subordinate groups." Systems of oppression and dominance are the foundation of racism: discrimination and oppression against disadvantaged populations.

van Wormer (2004) defines oppression as:

The social act of placing severe restrictions on an individual, group or institution. Typically, a government or political organization that is in power places these restrictions

> formally or covertly on oppressed groups so that they may be exploited and less able to compete with other social groups. The oppressed individual or group is devalued, exploited, and deprived of privileges by the individual or group with more power (p.6).

The political system continued to enact laws that progressively included specific amendments making slavery and racial segregation illegal. These provided "fundamental and universal rights of freedom" for minorities. The Civil Rights Act of 1964 as amended in 1965 included additional protection of the right to vote for Blacks and women, and provisions banning segregation of public facilities. In addition, employment discrimination and the withholding of federal funds from discriminatory programs were banned This included health care and education systems.

Despite these bans, the US created systems of oppression and racism that perpetuated discrimination in educational institutions as well as in other public facilities. These systems of racism put minorities at a significant disadvantage economically and created internalized oppression and racism. Bishop (van Wormer 2004, p. 35) describes the historic oppression of African Americans by Whites as aggression turned within; this is common to ALL oppressed groups throughout the world. This leads to negative self-esteem and self-image which in turn create barriers to personal and professional advancement.

This is further evidenced in the historically low numbers of blacks and minority populations graduating from colleges and entering medical school. Petersdorf, et al. (1990) reported:

> In the 1950's and 1960's medical schools continued to reflect the discrimination in the US. They were primarily the preserve of the white man. Most medical schools graduated only a few dozen minority physicians each year. All minority physicians were trained at

minority serving institutions such as Meharry Medical Center and Howard University. It was not until the landmark civil rights court decisions and legislation of the 1950's and 1960's that all institutions were opened to minority candidates (p. 663).

In 1970, the Association of American Medical Colleges (AAMC), a not-for-profit organization based in Washington DC continued to be concerned with the small representation of minority groups in US medical schools. The competition for minority students and changes in federal loan and scholarship funds prompted the AAMC to form a Task Force to (1) investigate barriers to access for minorities in the medical profession and (2) to identify recommended policy changes required for the reduction or elimination of the complexities of the problem. Recommendations from the Task Force were:

1) The retention of students in the educational pathway leading to the medical profession. Including the most important factor in retention during premedical education, the availability of financial aid at the undergraduate level and the student's perception of its availability at the medical school level.
2) Financial assistance programs for medical students.
3) The recruitment of students into the education pathway.

Key Policies Were Established. The first policy recommendation was to focus special attention on minorities that were underrepresented in medicine, defined as an ethnic or racial group whose proportion of physicians was less than its proportion in the population, thus leading to the classification as underrepresented (URM). At that time, this included Blacks/African Americans, Native Americans, Mexican Americans and mainland Puerto Ricans (Petersdorf et al., 1990). The second policy recommendation was to advocate for parity between representation in medicine and representation in the overall population.

The major goal of the present research is to use a social work perspective to analyze the complexities of the academic and non-academic experiences of a sample of URiM students at the University of Colorado SOM. A secondary goal is to explore the possible influence of one aspect of social work, a Sense of Belonging, on student experience. To support this research, I reviewed two sets of published research, the first on student overall experience in higher education, specifically studies on medical students when available, and the second on studies focused on Sense of Belonging.

In this chapter, I present summaries and critiques of these two bodies of work. I then use a social work perspective to identify the methodological gaps in this literature. These gaps informed the design of the proposed research, presented in the next chapter on methodology.

Studies of Overall Student Experiences

The literature comprised two categories of studies on student experiences. The first category takes an approach similar to the one used by this researcher, a holistic social work approach that seeks to understand the psychosocial and systems aspects of the student experiences in the environment. This holistic approach was taken in my interactions with students over the eight years preceding this research and that led directly to it. This paradigm allows the emergence of both academic and non-academic experiences critical to student well-being. For example, the importance of faith and family (Thomas, 2011); student interest groups (Hadinger, 2017; Richards pilot observations); connecting to community safe space (Thomas, 2011; Shochet et al., 2015) and other less-obvious factors such as maintaining physical well-being through exercise (Richards, pilot observations).

The second category of studies (a subset is reported in Table 1) was designed *a priori* to focus on specific aspects of student experiences. I reviewed over fifty studies on aspects of

student experience. Most of these studied only one factor as critical to student experience, for example, academic performance (Adriole, and Jeffe, 2012) or race-related experiences (Gartland, et al., 2003). I then applied a strict inclusion criterion requiring a holistic approach by the researcher, that they explored multiple dimensions of the student experience. While these studies vary in their methods, they all reveal the importance of at least one aspect of psychosocial factors as key to the student experience. These are summarized in Table 1 and reviewed below.

As early as 1961, Hutchins examined the perceptions of their environment by the faculty and students at his medical school. Although the descriptors he used are no longer, they have modern-day equivalents. Decades later, his research informed the development of a new quantitative measure, The Johns Hopkins Learning Environment Scale (Shochet et al., 2015), to assess student perceptions of the medical school learning environment. The 18-item scale also reflects issues raised by students in the pilot observations for the current study (Table 1). Those include such psychosocial issues related to behaviors and attitudes as academic achievement, breadth of interests, humanism, participation and social conformity. However, Hutchins' (1961) use of these data was limited to student choice of medical specialty and not to overall sense of belongingness in medical school.

While Hutchins made no references to race and ethnicity, Frierson (1987) examined the same topics of perception of the academic environment by medical students, faculty and peers but from the perspective of black students. His major results include high levels of negativism in faculty behavior, student feeling of alienation, high stress levels and large differences in socioeconomic status (SES) between races. His paper is notable for topics seldom addressed by other authors but included in the proposed interviews: effects on black students of the following behaviors of faculty and peers: nonverbal and verbal behavior, insensitivity to URiMs, being

ignored by lab instructors, and biased grading. An unusual strength of this study was that the students were also asked specifically about positive experiences. Overall, a surprising result was that while 64% of black students reported experiencing significant stress, a majority also reported being satisfied with their choice of medical school.

A deficiency of that paper is the lack of a full description of the questionnaire topics. For example, there is no description of how the behavior described as *nonverbal communication* conveys a negative perception of the student by faculty or peers. No specific examples are given of harmful negative behaviors, of being ignored by faculty or of biased grading.

Orom et al. (2013) offers a literature review of 28 papers rather than a research paper. It is included here because it provides a useful overview of the state of the research to 2005 with respect to learning and social environments, student satisfaction, and experiences with discrimination and academic performance. Importantly, the authors include assessments of interventions to improve URiM performance. This review reinforces the present literature review in revealing the paucity of published studies of overall experiences. The results indicate that URiM students have less supportive social and less positive learning environments, and do experience discrimination. Performance on standardized exams was substandard, progress slower and attrition higher. They conclude that interventions are needed and specify that learning climate must be improved. This contrasts with many papers that do not connect their research with the design of future interventions.

Odom (2007) lists perceived barriers to success as identified by ethnic minority medical students. Facilitators of success include support systems, professional exposure, financial aid and personal characteristics. Barriers were defined as lack of financial and social support, low standardized test performance, experiencing racial stereotyping and discrimination and self-

imposed barriers. The research questions were too narrowly focused on defining success factors. In addition, this study did not capture the students' experiences using a qualitative methodology. This hampers the development of the recommended cultural awareness and education programs: these must be grounded in research on student experience. Recommendations for future studies included identifying programs and policies aimed to increase racial and ethnic diversity in the medical school profession utilizing the findings from the Odom study. However, there were no specific programs or policies identified.

Guiton et al. (2007) highlight past efforts to address the well-documented racial and ethnic disparities in health care including "increasing the proportion of underrepresented U.S. racial and ethnic minorities among health professionals," and integrating "cross-cultural curricula . . . early into the training of future health care providers." Both recommendations are expected to benefit from enrollment of a diverse student body in medical schools. The study specifically asks whether experience with a diverse student body during medical school supports positive attitudes toward diversity. They probe students' attitudes about care of patients from diverse backgrounds and the role of diversity in society at large. This study used quantitative methodology to provide a correlation between the differences in diversity experiences before and during medical school, and how those influence beliefs about culture and health.

Thomas et al. (2011) is the study most closely aligned with the goals of this research and is similar to the proposed research in several ways. Although it appears to focus on success factors, the open-ended interview approach followed by a qualitative data analysis provided a comprehensive overview of student experience both in and out of the academic environment. An interview rather than survey approach, while invaluable in revealing unexpected factors, is time-intensive and limits the number of subjects, in this case to 13 black males. The authors identified

four major themes: educational experiences, exposure to the practice of medicine, psychosocial-cultural experiences, and personal attributes and individual perceptions. Within these four categories, the authors identified the expected obstacles of educational, financial and bias challenges. In addition, they identified a category not discussed in many papers, community challenges**.** As expected from many previous studies, the contributors to success included the importance of social support, group identity and exposure to medical practice. However, it also revealed some surprises: the need by some students for faith, a need for social responsibility and the importance of family, advisors, role models and mentors as well as the expected peer supporters.

By using direct quotes, the author paints a vivid picture of the experience of black male medical students and the challenges they face. More valuable still would be a quasi-longitudinal approach in which the progress of students could be monitored. Another weakness of the paper is that while they argue that interventions are needed, the paper would be strengthened by linking specific interventions to outcomes.

Shochet et al. (2015) is the most quantitative paper reviewed. While the goal seemed narrow, the construction of a measure to assess students' perceptions of the medical school learning environment (LE) at Johns Hopkins Medical School. The authors connected their results to a wide range of student experiences. However, these were restricted to experiences related to the school rather than also including those outside of school and prior to medical school. Finally, while many of these experiences were related to faculty behavior, they also included student perception of the ease of making friends, of a sense of community and a sense of belonging.

A value of this paper is that the authors understood that they had underestimated the significance of social environment in learning. They concluded that poor sense of belonging and weak peer networks resulted in a lack of "safe spaces" for learning and were associated with low engagement subscales. They recommended that these factors be a target of future research.

Summary of Studies on Student Experience

Overall, these papers reveal greater challenges to URiM students than those faced by majority-race students. Challenges include, for example, less social support, alienation, lacking a sense of belonging, racial discrimination by faculty and peers, poorer academic preparedness, lower exam scores and performance, and higher attrition. Identified contributors to success included social support, safe spaces, social responsibility, prior exposure to the field of medicine, group identity, breadth of interests, mentoring, faith, and being given social responsibility. These are invaluable insights. However, overall there is insufficient social work approach: the psychosocial causes and consequences behind these experiences are not adequately explored. The present research addressed that deficiency.

Table 1

Studies on Overall Student Experiences

Study and Goals	**Participants, Sample Size, Methods**	**Variables Studied**	**Results**	**Strengths and Limitations**
Hutchins, 1961 Study medical student perceptions of faculty, peers and environment and subspecialty choices	1901 students, 25 medical schools. Quantitative Environment Inventory: 180 item questionnaire	Aspects of med school climate such as social conformity, supportiveness by faculty; student achievement levels and characteristics	Found that characteristics of students and faculty were predictors for subspecialty of choice	**Strengths:** First to study wide range of significant psychosocial factors **Limitations:** White students only; No recommendation for improvement
Frierson, 1987 Gain a sense of how black students perceive the medical school environment	76 students from four NC Medical Schools Questionnaire: 105 items	Perceptions of interactions with faculty and peers, medical school environment and demographics	High levels of negativism due to white faculty behavior verbal and nonverbal; alienation; high stress; large differences in SES between races	**Strengths:** Identified specific stressors for black students. **Limitations:** Insufficient description of some topics in questionnaires
Orom et al. 2013 Literature review on URiM students' social and learning environments	Overview of 28 studies Includes 4 databases + reference list of studies 1980 to 2013	Many, literature review. Experiences w/ discrimination; Factors affecting academic performance. Assessment of interventions	Several literature review URiM experienced: Less social support, Discrimination, Lower exam, performance, higher attrition	**Strengths:** shows need for more studies on comprehensive overall student experience. Gives assessments of interventions to improve performance **Limitations:** NA, review paper

Study and Goals	**Participants, Sample sizes, methods**	**Variables Studied**	**Results**	**Strengths and limitations**
Odom et al., 2007 Explored barriers and facilitators for personal and professional success	43 URiM students from six schools. Focus groups + demographics survey	Facilitators and barriers for personal and professional success	Facilitators: support systems, professional exposure, financial and personal characteristics Barriers: Lack of social support and financial aid, standardized tests, Discrimination	**Strengths:** Useful for reducing barriers **Limitations:** Narrow definition of success. No specific changes proposed
Guiton, et al. 2007 Studied impact on educational outcomes of cross-cultural interactions among medical students	441 rising MS IV's from 3 schools, differing levels of student body diversity Quantitative; 55 questions based on survey from Higher Education Research Institute @ UCLA	Experiences w/ diversity prior to medical school, diversity related experiences and attitudes; Informal and formal instruction	Informal interactions most influential in shaping beliefs and attitudes related to diversity; high diversity seemed to improve learning	**Strengths:** Good sample size, and research questions on many potential values of diversity **Limitations:** Not extensive qualitative interviews could miss critical factors

Study and Goals	Participants, Sample Size, Methods	Variables Studied	Results	Strengths and Limitations
Thomas et al., 2011 Determined experiences and characteristics contributing to success of black men	10 black male students at FL State MC and 3 black male physicians. Interviews + Consensual Qualitative Research (CQR), Constant comparison analysis	Educational experiences, exposure to medical professionals, psychosocial-cultural experiences; personal attributes and individual perceptions	Contributors to success: Social support, education, exposure to the field of medicine, group identity, faith, social responsibility	**Strengths:** Interview methods revealed many new factors **Limitations:** Small sample sizes; limited to males; Insufficient proposed interventions for improvement
Shochet et al., 2015 Constructed a measure to assess students' perceptions of the learning environment (LE)	377 students at Johns Hopkins Medical School; Survey items: LE - 32 items + personal growth. Exploratory factor analysis	Community of peers, faculty relationships, academic climate, meaningful engagement, mentoring, inclusion, safety, physical space	Positive learning environment requires: good social environment; peers supportive; safe spaces	**Strengths:** Quantitative; Recommended future work on sense of belonging, psychosocial **Limitations:** Not interviews No URiM focus

Sense of Belonging: Introduction

Definition and Theory. Both Maslow (1954) and Thoits (1982) described belonging as a basic human need. For example, Maslow's Hierarchy of Needs theoretical perspective indicates that one cannot achieve self-actualization if all needs of the pyramid (hierarchy) are not met**.** Maslow believed people move through different stages of five needs that motivate human behavior: physiological, safety, love and belonging (social), esteem, and self-actualization. Each stage of need had to be met before progression to the next stage of need could occur.

Anant (1966) theorized that belonging was the missing link in understanding mental health or illness through a relational perspective**.** Neither Maslow, Thoits, nor Anant provided a definition of Sense of Belonging.

The definition used in this research is that of Hagerty, Williams, Coyne, and Early (1996) who defined Sense of Belonging as "the experience of personal involvement in a system or environment so that people feel themselves to be an integral part of that system or environment." The anecdotal observations and interactions with medical students made by the current researcher relate to the above definition. For example, medical students often come to the Office of Diversity and Inclusion discussing experiences and issues related to sense of belonging and being valued (or lack thereof) in the CU School of Medicine. Students consistently voiced, "I do not feel like I belong here."

One student interaction will serve as an example of one of the many causes of a lack of Sense of Belonging in URiM students. Student FM lost a Sense of Belonging after repeatedly hearing from his peers that pursuing a career in primary care would only pay about $100,000 annually, which would limit his quality of lifestyle that one could attain after completing medical school and residency. Pursuing a sub-specialty increases that annual salary to $250,000 or more, and satisfies a primary reason for coming to medical school. FM was astonished by the consistent comments. This student's remarks suggested he lost his Sense of Belonging after comments from peers suggesting family practice is a lower level specialty: creating better health outcomes for the underserved or uninsured populations is not highly valued. This perception affecting motivation for attending medical school is associated with poor academic performance.

Social Support and Its Relationship to Sense of Belonging. Social support is often studied as a relational concept associated with social and psychological functioning, as is Sense

of Belonging. Cohen and Willis (1985) operationalized social support and well-being as an integration into a social network that, to some extent, promotes psychological health through both direct and indirect processes. However, these authors noted that there are inconsistencies in findings regarding the effects of social support that can be attributed to many factors. Those factors include: failure to distinguish multiple conceptualizations of the concept of social support, lack of theoretical models to guide the research, various flawed measures of social support, study methodology and nature of outcomes under investigations.

Hagerty and Putsky (1995) postulated that Sense of Belonging is a unique element of relatedness and is one element among many that comprise social support processes. They further conclude that Sense of Belonging may in fact be more powerful than social support in relation to interpersonal functioning difficulties. Hale, et al. (2005) findings demonstrated that social support is a significant predictor of physical health. They found that belonging was also a significant predictor of physical health indicating that a social network or close circle of friends is indispensable to college students.

Why is Sense of Belonging emphasized in this research? An overview of the medical education literature on student experience reveals relatively few studies on Sense of Belonging as compared with other psychosocial factors. In particular, other studies tend to focus on systems-level issues and URiM reduced performance. This raises the question, why did so many of the students in the pilot observations at CU SOM express a lack of belonging?

There are three possible reasons for this discrepancy in the importance of the role of Sense of Belonging between the current study and the published literature.

First, surveys are a common instrument for this research. Twenty-five of the twenty-eight studies reviewed by Orom (2013) did not use one-on-one interviews. Instead they used self-

report surveys. Students were asked to agree or disagree with a statement or to give it a value on a Likert scale. Therefore, they are constrained by the choices offered, and Sense of Belonging rarely appeared in these surveys.

Second, if the research relies on interviews, it is essential that the student feels able to report something as potentially damaging to their reputations as, "I don't belong here." As discussed above, I am a social worker trained in interview techniques, I create a safe space, I am a member of an underrepresented minority and I use an interview designed to elucidate a wide range of psychosocial factors contributing to the nature of experience.

Third, medical education research has only recently advanced to incorporate knowledge and techniques customary in social work, education and psychology research.

Studies of Sense of Belonging

Table 2 and the text here summarize and critique the key studies on Sense of Belonging relevant to the current research. The following narrative summaries and critiques highlight notable results.

Hagerty et al. (1992, 1995, 1996) brought Sense of Belonging to prominence and legitimacy in the field of nursing. They established the instrument (SOBI). This brought some quantification to a then largely qualitative field. It has been utilized in studies for over a decade (Malone, 2012). This instrument is currently translated into several languages and used globally for research relating to belonging, depression, suicide, identity, and other indicators of social and psychological functioning. An important conclusion is that Sense of Belonging may be more powerful than social support in relation to interpersonal functioning difficulties. The usefulness of Hagerty's studies is limited by the focus on nursing students. Additionally, she focused on

social and psychological function and in particular on loneliness and depression rather than on how a sense of belonging promotes academic success and well-being.

Hoffman, et al. (2002) provided empirical measures geared to retention, to inform institutional policy and program design. Other contributions from their work include the importance of block scheduling and learning communities. The SOBI illuminated five underlying dimensions of sense of belonging.

- Perceived Peer Support
- Perceived Faculty Support/Comfort
- Perceived Classroom Comfort
- Perceived Isolation
- Empathetic Faculty Understanding.

Findings revealed that learning communities facilitated the development of relationships that integrated both academic and social aspects of university life and thus promoted Sense of Belonging.

Hurtado et al. (2007) are leaders in the study of Sense of Belonging as applied to under-represented minorities (Hispanic/Latino). They designed an instrument using naturalistic questions that positively correlated with academic achievement. Studies also supported the suggestion that family responsibilities decreased Sense of Belonging in that they interfered with both academic and non-academic adjustments (Hurtado et al., 2007). They noted a difference between URM's and majority students in that "student satisfaction with the relevance of coursework to everyday life is a key factor in both managing the new academic environment and sense of belonging" (p.881, 2007). Hurtado et al. (2007) confirmed that academic adjustment and Sense of Belonging are strongly linked for every student in the first year of college. Managing

the academic environment is essential to feeling a part of campus life. Researchers had previously concluded the two could be independent of one another.

Another important contribution of their work is that diversity in class composition increases Sense of Belonging for all students, majority and minority:

> In fact, positive interactions with diverse peers have a stronger effect on sense of belonging than the total amount of time students spend socializing. Thus, to feel a sense of belonging, it is not only important to interact frequently with one's peers but also to engage with a diverse range of peers in a substantive manner (Hurtado et al., 2007, p. 882).

Two papers extend Hurtado's work. These are not considered key studies and are not summarized in the table. Freeman et al. (2007) is very similar to Hurtado et al. (2007) in approaches and results adding that instructor "warmth," "openness," and "encouragement" was critical to the support of a Sense of Belonging. Johnson et al. (2007) built on the work of Hurtado & Carter (1997) in studying Sense of Belonging in African American, Hispanic/Latino, and Asian Pacific American students. They confirmed Hurtado's work in finding that these students reported a diminished Sense of Belonging as compared with majority students. The contribution of the paper is to mitigation: unlike many studies, they make concrete recommendations for improvement of resident hall climate and social life and campus racial climate.

Reilly et al. (2009) examined using three instruments the correlation between perceived stress and sense of belonging in doctoral nursing students. They found a statistically inverse relationship between perceived stress and Sense of Belonging: more stress is correlated with less Sense of Belonging. Their study did not include interviews to capture the richness of student experiences about perceived stress and sense of belonging. Their recommendation for further

research includes additional studies of perceived stress and Sense of Belonging in diverse student populations in doctorate nursing practice programs.

Sedgwick and Rougeau (2010), make a vital connection between social support and sense of belonging also among nursing students. Using a qualitative interview method, they sought to uncover themes of 'points of tension' and 'minimizing the differences'. They found that expectations held by nurses of themselves, their preceptor, professional staff members and the overall clinical environment did not coincide with their experiences. This disconnect prevented a Sense of Belonging that could only be restored by social support from staff. A primary factor preventing students from feeling part of the team was not 'being treated like a nurse.' This, in turn, led to anger, frustration, decreased self-confidence and confusion. The value of this study was its reliance on open-ended interviews and consequent recommendations for changes in the educational environment to increase Sense of Belonging.

Meeuwisse et al. (2010) uncovered differences in contributors to Sense of Belonging between ethnic minority and ethnic majority undergraduates in The Netherlands. They studied the learning environment, social interactions, Sense of Belonging and study success of 145 minority and 378 majority students. They found that minority students had a stronger Sense of Belonging when they had a favorable relationship with their instructors and fellow students but the relationship to their institution was not a significant factor. However, majority students' informal relationships with fellow students led to a Sense of Belonging, not a critical factor for minority students. This may prove to be a significant difference in sense of belonging in medical students and thus may influence mitigation.

Malone (2011) developed a 12-item Belongingness measure. They connected their General Belongingness Scale (GBS) to Big Five Variables. Their Big Five personality traits are

Extroversion, Agreeableness, Conscientiousness, Openness, and Neuroticism. This investigation was the first to document that achieved belongingness is distinct from the need to belong. The primary objective of the study was to develop a brief but global measure of belongingness that could be moderately connected with Need to Belong. It suggests a need for additional social contact: belongingness requires stable relationships relating to the Big Five personality traits facilitating such relationships. Individuals high in extroversion and agreeableness with tendencies towards positive interpersonal and social interactions reported high levels of belongingness. In contrast, those who were high on the Neuroticism who struggled with feelings adversely associated with interpersonal and social acceptance, reported lower levels of belongingness. This suggests there are benefits associated with tendencies to push toward positive social interactions while successfully regulating counter tendencies.

Strayhorn (2012) conducted several comparative studies predicting undergraduate student's Sense of Belonging as reflecting the social support that they perceive on campus. Students reported a feeling of connectedness when they felt "that one is important to others, that one matters" (p. 305). This study further explored a sense of belonging for students who perceived themselves as marginal to campus life (ie. Latino students). In one study, Strayhorn reported that sense of belonging (Black and White male college students) was conceptualized as "a subjective evaluation of the quality of student relationships with others on campus" (p.505). Sense of Belonging consists of both cognitive and affective elements pertaining to one's position or role in relationship to the group. This elicits a response, behavior or outcome. This is similar to other studies listed above: Sense of Belonging is a basic human need and a motivation sufficient to influence behavior (Strayhorn, 2012 p.17).

Shochet, Colbert-Getz and Wright (2015; see Table 2) constructed a new measure of student perceptions of the learning environment (LE) at Johns Hopkins Medical School. After applying this measure, the authors concluded that future work should be alert to the possibility that Sense of Belonging may be important in those students struggling with the LE. This might suggest interventions in factors other than academics.

Table 2

Studies on Sense of Belonging

Study and Goals	**Participants and Methods**	**Results**	**Values and Limitations**
Hagerty, et al. 1996 Examined relationships between sense of belonging, personal characteristics and psychological functioning (see also 1992, 1995)	379 community college students; Development of SOBI Instrument with 49 items on a self-report survey; examined social support and other factors	Sense of Belonging was closely related to indicators of psychosocial functions. Lower SES in women = Depression, Male v. Female Loneliness	Limitations: ages of student not medical education no face-to-face interviews Value: Development of instrument widely used by Hagerty and others, allowing across-study comparisons Highlighted need for social report
Hoffman et al., 2002 Studied SoBl In First Year College Students	205 students enrolled in university mandatory freshman course, Focus groups, 85 items for two measures, 205 questionnaires analyzed	Developed an empirical instrument to measure sense of belonging	Limitations: not medical students not face to face interviews Value: supported the relationship between increased interactions among peers related to common challenges, and stressors, affecting sense of belonging

Study and Goals	**Participants and Methods**	**Results**	**Values and Limitations**
Hurtado et al. 2007 Predict college transition of URM biomed students	5049 science majors across races from 75 institutions; survey	Many (see text): Sense of Belonging affected by family, peer group, financial burden, academic performance, institutional climate, campus social climate and diversity	Limitations: Survey method Undergraduates Value: Large sample size Statistical validity Science students Sense of Belonging factors directly asked of students in survey
Reilly, 2009	89 female white Doctor of Nursing students; Mean age 46 years. Used three instruments: Personal Characteristics Study Sense of Belonging Scale (SOBI-P) Perceived Stress Scale (PSS)	Inverse relationship between stress and sense of belonging ($p<.01$). Being more stressed is correlated with less sense of belonging. Cohort model not helpful in fostering sense of belonging	Limitations: Correlation, not causation Predominately white subjects Single institution nurses, not MD's No interviews to capture "richness" of student experiences Value: Questioned the value and/or necessity of a cohort model as contributing to decreased stress and increased sense of belonging

Study and Goals	Participants and Methods	Results	Values and Limitations
Sedgwick & Rougeau, 2010 Determined events that affect student sense of belonging in rural hospital medical team	12 fourth year nursing students Phone interviews, written accounts	Developed an understanding of nurse culture; Students need to developed empathy and utilized those skills in understanding non-verbal communication; Nurses and healthcare professionals' need to develop a reciprocal approach to team professionalism	Limitations: Predominately white subjects Single institution nurses, not MD's Only talked to students Phone and written accounts - no observation of opportunity of affect Value: Used interviews to elicit stories Student engaged in active learning process of understanding interdisciplinary team dynamics ….Gave quotes and recommendations
Meeuwisse, et al. 2010 Effects on sense of belonging of environment, interaction, relationship of student to institution	523 first year university students from four different universities in the Netherlands Online questionnaire used structural equation modeling	Quality of interactions - Relationships with teachers and students, sense of belonging, academic progress; sense of belonging in URM's differed from majority in effect on relationships to university and faculty	Limitations: Netherlands undergraduate …Online survey Value: Unanticipated difference between URMs and majority students in effects of student relationship to faculty and institution on strength of sense of belonging

Study and Goals	**Participants and Methods**	**Results**	**Values and Limitations**
Malone et al., 2012 Developed a 12- item belongingness measure Connect (GBS) to Big Five Variables	3 studies on undergraduate students in psychology classes (n=81) Online survey	"Achieved belongingness" does not diminish "need to belong". Belongingness associated with five personality traits Extraversion Agreeableness Conscientiousness Openness Neuroticism	Limitations: Undergraduate psych students Self-reported Value: Well-being is connected to SoBI Well designed to separate multiple ….causes Good sample size High statistical reliability and validity
Shochet et al. 2015 Constructed a tool to assess students' perceptions of the learning environment	377 students at Johns Hopkins Medical School	Survey items: LE-32 items + personal growth Exploratory factor analysis	Limitations: Lack of in-depth interviews meant that psychological and ....sense of belonging …insufficiently addressed initially Few URiMs at JHSOM Value: Suggested the need for broad interventions beyond academics to optimize the medical school learning environments

Study and Goals	Participants and Methods	Results	Values and Limitations
Strayhorn, 2012 Summarized several studies of Sense of Belonging in undergraduates, both URM and white	Various, many studies	Sense of Belonging: basic human need and motivator; Need to feel that "one matters", is important to others; Relationship to Campus life important;	Limitations: Undergraduates Value: Studied multiple ethnic groups Compared white students Linked to basic tenets of psychology

The pilot observations by this researcher, combined with studies published by others, suggest that multiple factors undermine a Sense of Belonging (Table 2). For example, why does a student who has successfully completed the demanding admission requirements for medical school feel that they do not belong there? More generally, what experiences undermine all the evidence that a student does in fact belong in medical school? And how can this knowledge be used in mitigating negative experiences?

Summary of Studies on Sense of Belonging

In the eight years of my anecdotal observations of URiM, I often heard students who came to my office for assistance say, with some anguish, "I don't feel like I belong here!" This suggested that a Sense of Belonging could be critical to student well-being and should be a focus of my overall study of student experience. Initially, I used the definition of Sense of Belonging given by Hagerty, Williams, Coyne, and Early (1996) who defined Sense of Belonging as "the experience of personal involvement in a system or environment so that people feel themselves to be an integral part of that system or environment (p. 29)." However, the findings discussed in Chapters 4 and 5 show that Sense of Belonging is more complex and multifactorial than this definition indicates.

While the literature reviewed here contributed to the development of the interview protocol, it is important to note that few studies specifically address Sense of Belonging as a factor in medical student experience, either in majority or in URiM students, concentrating instead on undergraduates and nursing students. In fact, the field began with several well-known papers on nurses by Hagerty and colleagues (Hagerty et al. 1992, 1995, 1996). This made clear the urgent need for this research on URiM students at the CU SOM.

A major influence on the design of the present research was Shochet et al. (2015). This quantitative study of 377 students at the Johns Hopkins School of Medicine examined aspects of the learning environment and personal growth. In the discussion of their results, the authors concluded that psychological factors and sense of belonging (emphasis mine) were insufficiently addressed.

Taken together, the studies reviewed here on Sense of Belonging in undergraduates and nurses placed emphasis on psychosocial factors such as social support (Hagerty et al., 1996, Hoffman et al., 2002, Hurtado et al., 2007), empathy and non-verbal communication (Sedgwick and Rougeau, 2010), personality traits (Malone et al., 2012) and relationships of URiM and majority students with faculty (Meeuwise et al., 2010). In all cases, these variables were important in Sense of Belonging and could usefully be studied in medical students.

In addition to these, three studies concerned with stress suggest avenues of research in medical students. Hoffman et al. (2002) found that undergraduates facing similar stresses and common challenges developed a Sense of Belonging. In studies by Reilly (2009) and Malone et al. (2012), Sense of Belonging reduced stress and increased well-being.

In terms of design and results, the article most relevant to the present research was the study of 5000 URM biomedical undergraduate students by Hurtado et al. (2007). She found that Sense of Belonging was affected by family, peer group, financial burden, institutional climate

and diversity, all factors that guided the design of the current research. Her model is presented in Figure 1 in Chapter 1.

Chapter 2 Summary

This chapter first provides a summary of the political landscape of the United States and of educational access over time with respect to medical education of underrepresented minorities. This overview makes clear the central contribution of racism to inequities in medical education. The resulting policies that were recommended to correct this inequity and achieve parity between the representation of minorities in the population and in medicine are also reported.

I reviewed two sets of published research, the first on student overall experience in higher education, specifically studies on medical students when available, and the second on studies focusing on Sense of Belonging. This chapter summarizes and critiques these two sets of publications. I then use a social work perspective to identify the methodological gaps in this literature.

Summary of Studies on Student Experience

Overall, these papers reveal greater challenges to URiM students than those faced by majority-race students. These include, for example, experiencing less social support, alienation, lacking sense of belonging, racial discrimination by faculty and peers, poorer academic preparedness, lower exam scores and performance, and higher attrition.

Certain contributors to success were identified: social support, safe spaces, social responsibility, prior exposure to the field of medicine, group identity, breadth of interests, mentoring, faith, and being given social responsibility. These are invaluable insights. However, overall there is the lack of a social work approach: the psychosocial causes and consequences behind these experiences are insufficiently explored. The present research addressed that

deficiency.

Summary of Studies on Sense of Belonging

In the eight years of my pilot observations of URiM, I often heard students who came to my office for assistance say, with some anguish, "I don't feel like I belong here!" This suggested that a Sense of Belonging could be critical to student well-being and should be a focus of my overall study of student experience. Initially, I used the definition of Sense of Belonging given by Hagerty, Williams, Coyne, and Early (1996) who defined Sense of Belonging as "the experience of personal involvement in a system or environment so that people feel themselves to be an integral part of that system or environment (p. 29)." However, the findings discussed in Chapters 4 and 5 show that Sense of Belonging is more complex and multifactorial than this definition indicates.

The field began with several well-known papers on nurses by Hagerty and colleagues (Hagerty et al., 1992, 1995, 1996). This made clear the urgent need for this research on URiM students at the CU SOM major influence on the design of the present research was Shochet et al. (2015). This quantitative study of 377 students at the Johns Hopkins School of Medicine examined aspects of the learning environment and personal growth. In the discussion of their results, the authors concluded that psychological factors and sense of belonging (emphasis mine) were insufficiently addressed.

Taken together, the studies reviewed here on Sense of Belonging in undergraduates and nurses placed emphasis on psychosocial factors such as social support (Hagerty et al., 1996, Hoffman et al., 2002, Hurtado et al., 2007), empathy and non-verbal communication (Sedgwick and Rougeau, 2010), personality traits (Malone et al., 2012) and relationships of URiM and majority students with faculty (Meeuwise et al., 2010). In all cases, these variables were important in Sense of Belonging and could usefully be studied in medical students.

In addition to these, three studies concerned with stress suggest avenues of research in medical students. Hoffman et al. (2002) found that undergraduates facing similar stresses and common challenges developed a Sense of Belonging. In studies by Reilly (2009) and Malone et al. (2012), Sense of Belonging reduced stress and increased well-being.

In terms of design and results, the most relevant article to the present research was the study of 5000 URM biomedical undergraduate students by Hurtado et al. (2007). She found that Sense of Belonging was affected by family, peer group, financial burden, institutional climate and diversity, all factors that guided the design of the current research. Her model is presented in Figure 1 in Chapter 1.

The pilot observations by this researcher combined with published studies by others suggests that multiple factors undermine a Sense of Belonging (Table 2). For example, why does a student who has successfully completed the demanding admission requirements for medical school feel that they do not belong there? More generally, what experiences undermine all the evidence that a student does in fact belong in medical school? And how can this knowledge be used in mitigating negative experiences?

Summary of Deficiencies Uncovered in the Literature

All studies were found to have one or more gaps in their methodological approach. These are summarized here. The consequences of these gaps and the methods I use to avoid them are all discussed in the next chapter.

- Insufficient use of face-to-face interviews that allow reading of non-verbal cues.
- A lack of open-ended questions in place of surveys using multiple-choice answers. This means that the researchers' prior assumptions will limit discovery of important new factors.
- A theoretical basis lacking an Ecosystem approach that incorporates all aspects of the

participant's environment in the past and present.

- An emphasis on three metrics, average responses, overall patterns of behavior at the group level and generalizations about behaviors, rather than an examination of individual differences. These are critical for tailoring interventions to students.
- Lack of an emphasis on psychosocial factors. Many studies concentrate on student performance without examining factors that can impact or are limited to research primarily on social support.
- Lack of solicitation of student recommendations. Students want to give their experience meaning and also to improve the culture and climate for others. They do this by suggesting increases in diversity, changes to curriculum and addressing factors which have been identified as increasing URiM's Sense of Belonging.

These are discussed in more detail in the following chapter on research methods and how my study addresses these gaps.

CHAPTER 3: METHODOLOGY

This study takes a qualitative Thematic Analysis approach (Braun & Clarke, 2006; 2012, 2014) to address three research questions:

1. What are the overall experiences, both academic and non-academic, of a self-selected sample of students from underrepresented minority populations at the CU SOM?
2. What role, if any, does Sense of Belonging have in shaping URiM medical student experience as suggested by the trends in pilot observations?
3. Do students have recommendations for improvements to the learning environment at the individual, interpersonal, and institutional levels?

In this chapter, I describe the research plan, summarize the influences on the design detailed in previous chapters and review the theoretical grounding of the methodology. Finally, I present the procedures that were used.

Research Design and Rationale

Overall Paradigm and Design Approach

The design approach of the present study consists of semi-structured in-depth interviews of a sample of URiM students in the University of Colorado SOM. This research is primarily exploratory with open-ended questions followed when needed by prompts for more complete explanations (Collins, et al., 2006; Newman, Ridenour, Newman & DeMarco, 2003). Thus, while the initial question is open-ended, prompts based on the answers during the interview may probe further on topics related to such factors as Sense of Belonging, well-being and systems issues.

The participants in my pilot study provided information for the study design themselves, enhancing its significance: the design is grounded in the lived experiences of URiM students

(Collins, Onwuegbuzie & Sutton, 2006). While the interviews were influenced by a combination of theory, prior observations and institutional goals, the themes are identified by an open-ended interview that allows them to emerge, discussed in more detail below (Braun & Clarke, 2006).

The literature review reveals few prior related studies that attempted to capture student experiences through open-ended, one-on-one, face-to-face interviewing. Students can reveal emotions, often unexpected but critical to their experience, when they discuss those experiences with a trusted, trained interviewer. This can be conveyed by body language and facial expressions as well as verbally. Thus, an important value of face-to-face interviews is their ability to examine and deconstruct complex social/emotional issues.

This research is qualitative rather than quantitative: it is conducted in a naturalistic setting using interviews and behavioral observations as the methods of data collection (Creswell, 2013; Gliner, Morgan & Leech, 2009). These interviews are analyzed by a hybrid approach, both inductive and deductive (Fereday & Muir-Cochrane, 2006). It is inductive in which " the data (are coded) without trying to fit it into a preexisting coding frame, or the researchers' analytical preconceptions." (Braun & Clarke, 2006). It is also *deductive* in that some codes were constructed beforehand based on expectations from the literature review and my pilot observations. Finally, this research will be *interpretive* in that it will "seek to theorize the sociocultural context and structural conditions that validate the individual accounts that are provided" (p. 79, Braun & Clarke, 2006). In particular, one aspect of the interpretive framework here will be structural racism and its impact. The other is an Ecosystem approach, discussed elsewhere. The thematic analysis method identifies themes in the data (p. 79, Braun & Clarke, 2006; 2019) by the general method given for qualitative analysis in Gliner, Morgan & Leech (2009). The specific steps used in thematic analysis are described below.

Influences on the Study Design. The four influences on the design of the study are (1) a social work perspective described in Chapter 1; (2) the trends that were observed in my pilot observations from on medical students over eight years, described previously; (3) the need to avoid the methodological weaknesses (gaps) revealed by the literature review, discussed in Chapter 2, and (4) the Ecosystem model described in Chapter 1.

Gaps in the Research: A Social Work Perspective. Here I highlight five research methods that arise from a social work perspective but are used infrequently in much of the existing research on student experience: 1. Use of interviews. 2. Solicitation of student recommendations. 3. Capturing individual differences. 4. Capturing the advantages provided by an interviewer known to the student who is also familiar with the institution and can provide a safe space for the interview. 5. Following the Ecosystem Theory, including psychosocial factors in assuming that all aspects of the student's environment may be of potential importance (see Chapter 1). For each one, I give the method and then follow with a discussion of its use and advantages.

Use of Interviews. Twenty-five of the twenty-eight studies reviewed by Orom (2013) did not use one-on-one interviews. Instead they used self-report surveys. The method used in the remaining three is unclear. Five of the seven other studies reviewed above also used questionnaires or surveys. Face-to-face interviews with open-ended questions used in the solution-based approach of social work promotes the emergence of factors not anticipated by the researcher. This form of interviewing allows the use of observational techniques for reading non-verbal cues. One researcher, Hadinger (2017), used phone interviews and focus groups. A drawback of using phone interviews is that they prevent the researcher from using non-verbal cues of the interviewee. For example, observational behavior such as posture cues can

demonstrate emotional depletion (Richards, pilot observations). At all times I did follow the social work interview practice of not leading the participant to give an answer that I expect or desire in support of any prior beliefs I may hold about factors critical to the student experience (Teddli & Tashakkori, 2009).

The Role of the Participant in the Co-Construction of the Interview. When participants are allowed to construct their own narratives during interviews (e.g., Seidman, 2006), surprising results may occur. This did occur in the present study and these surprising results informed the construction of the themes. This can occur even when the interview questions are pre-scripted if participants can answer the question fully without interruption.

Interviews may be co-constructed to variable extent by the participant and the researcher. In this research study, co-construction happened to a limited degree in two ways. After the participant answered the initial question, scripted follow-up questions were asked as needed to elicit more detail, so in this sense, the participant's initial answer influenced the direction of the interview. A second way in which a participant can co-construct the interview occurred only once, in the case of Roger. He chose to expand his answer well beyond the scripted interview, providing rich details about how his experience with clinical practice following years of coursework gave him a Sense of Belonging, confidence and connectedness to his purpose.

Solicitation of Student Recommendations. A social work approach uses individual experiences and insights in developing a solution-based intervention. Few studies (see chapter 2) ask students directly for their insights into ways to improve their environment. Thus, the proposed study interviewed students for their input on improvements to all aspects of the learning environment with particular emphasis on Sense of Belonging. Note that student

recommendations were sought at all levels of the environment: individual, interpersonal, institutional and sociocultural. This is captured in Research Question 3.

Capture of Individual Differences. The social work solution-based approach requires knowledge of the needs of the individual. This affects the design of research studies: quantitative studies looking for statistical trends may obscure valuable information on individuals. The majority of studies on URiM student experience share the ultimate goal of designing interventions to increase URiM success. However, few of these take a social work approach that elicits deep knowledge of the student's individual needs required for an appropriate intervention or program design. For example, my previous coaching/advising sessions, by focusing on the individual, led to my designing a range of interventions tailored specifically to particular students.

Conduct Interviews in a Safe Space. There are advantages to conducting research in an environment familiar to the researcher and the participant. (1) Unlike much of the research cited above, the proposed studies were conducted by a researcher with extensive knowledge of the medical school environment, climate, faculty attitudes, curriculum and culture. (2) The researcher has high visibility in the school and thus the student had prior experience with her. This helped validate the researcher as a trusted resource potentially allowing the students to share more openly their experiences. (3) Furthermore, students being interviewed knew that they are in a safe space and that their replies can be an authentic representation of their experience.

Additional Strategies. In addition to the above guidelines, are more specific strategies that spring from a social work approach, all of which I used in conducting my interviews:

- Record student affect and nonverbal communication during interviews.

- Follow up questions that provide a method to probe for both negative and positive experiences if the participant does not volunteer that information as a basis for mitigation.
- Ask students about their past experiences in undergraduate school and even secondary school as well as out-of-school experiences to identify the factors that promote a strong sense of well-being.

The Role and Qualifications of the Interviewer

This design is effective when the interviewer has the following skills and knowledge. (1) They must be trained in active listening. (2) They must be able to understand, identify and extract the psychosocial experiences and needs of the student in "real-time" to prompt the next question. (3) They must have an understanding of systems, both academic and non-academic, that may affect a student's psycho-social needs, sense of belonging and of well-being. These may include institutional resources, faculty members and/or mentors, external social workers, and community non-profit organizations (Seidman, 4th ed. 2013).

Interview Site and Participants

Interview Site

The interviews were conducted in a neutral setting that eliminates any inferences of power dynamics, the Health Sciences Library. The interviewer was not positioned behind the desk, to avoid the appearance of authority. As discussed in Chapter 1, I have no grading or other power over the student's enrollment in medical school and I reassured them of that fact.

Participants

Sampling Group. The sampling group met the following criteria:

- This study was confined to URiM's at the University of Colorado School of Medicine. Race and ethnicity information were provided by current

Admissions/Matriculation Data from either the Office of Student Life or the Office of Diversity and Inclusion at CU SOM.

- The underlying population was confined to URiM students of various years who attended the CU SOM. In my coaching/advising sessions, I interviewed students from all phases of medical school. This gave a range of experiences, positive and/or negative, from which to develop improvements to the climate and to the individual students' Sense of Belonging.
- There were no restrictions on age, gender, sexual orientation, academic performance, ability and/or socioeconomic status.

Participants were approached through an email to their UC Denver account from the office of the researcher. See the email script in the Appendix.

The depth and richness of the interviews was enhanced by a certain degree of familiarity and trust with the interviewer. The majority of the students had some contact with the researcher at some point in their time at the SOM. This contact might have occurred through my role as the Director of the Office of Diversity and Inclusion or in my role as Program Manager of the BA-MD Combined Pipeline program. In these roles, I meet with groups of students when I give presentations or at social events, or I may have had some other previous formal or informal interaction. Prior to the initiation of this research, I may have met with individual students for career advising either at the initiation of the student or by a recommendation from the promotions committee.

Sample Size. The resulting sample size was ten. Sample size was dictated by (1) current enrollments of URiM's in the CU SOM, and (2) availability of current medical students who either matriculated to CU SOM from the BA-MD combined program or who are URiM's in CU

SOM. The response to the email invitations was strong but the pool of potential interviewees was limited.

Distribution by Race. At CU SOM, URiM representation is 25 - 28% of each incoming class of 184 matriculated students. Students participating in the study self-identified as belonging to the following races or ethnicities: Black/African American, Hispanic/Latino, Hispanic/Multi-racial, Vietnamese, Latino/Multi-racial. I am not reporting the specific numbers to protect student's anonymity as promised in the consent form.

Other Demographic Information. Table 3 shows gender and age range for the participants. Year in medical school program was only noted by researchers to identify ranges in medical school program of students interviewed, but this information is not shown here, to further protect the identity of student participants.

Table 3

Demographics of Participants

Participant #	**Gender Identity**	**Age Range (years old)**
599	Male	20-30
296	Female	20-30
741	Female	20-30
465	Male	30-40
145	Female	20-30
122	Heterosexual cisgender male	20-30
592	Female	20-30
625	Male	20-30
943	Male	20-30
842	Female	20-30

Ethical Basis of the Sampling Approach

To ensure that ethical performance and standards of practice were followed for this research, an IRB protocol was submitted and approved by both Colorado State University and CU SOM. Further, the following conditions and practices were stated in the IRB, and observed:

- There will be no coercion of research subjects.
- There is no coursework involved.
- The researcher is not in a position to evaluate subjects for grades.
- Privacy and confidentiality will be protected by using only research ID numbers and pseudo names assigned to subjects.
- Information from interviews will be presented as themes and descriptive tables derived from data analysis. Direct quotations will be used only with permission of the participant, with no identifying information.

Data Collection

The Interview

The interview protocol is given in the Appendix. The interview questions sought, first, to get an unprompted account from the students of their overall experiences throughout all domains of their ecosystem of individual, family, peers and institutional settings, to the macro level influence of the sociopolitical and/or institutional contexts. The second overall goal of the interview questions was to elicit factors identified in the pilot observations and in the work of other researchers that might have shaped experiences. The results will be used in designing future research, curriculum, programs and support services to improve the experiences of both URiMs and majority-race students at the SOM.

Recruitment and Informed Consent

Participants were contacted via mass email to medical students via a Listserv from the CU SOM Office of Diversity and Inclusion. The email script included the following: name of study, purpose of study, the duration of time requested for the session and choice of location for session. The email also included a link to register for the voluntary study participation.

At the beginning of the interview, the participant was asked for informed consent. The verbal consent script included a description of the project, the goal, the interview procedures, potential risks and discomforts, the student's right to stop or not answer any question that makes them feel uncomfortable, potential benefits to participants, future medical students and society; a confidentiality statement and reassurance that this information will not be used in any way other than for the purposes of my research, and contact information for me and my research advisor. I was prepared for the possibility that the student might experience emotional discomfort and was prepared to stop the interview if so and provide contact information for the AMC Student and Mental Health Services (303) 724-8859. This did not prove necessary.

The participants were asked for permission to quote from their transcript in the dissertation and in publications with assurances that no identifying information will be included.

A statement was included to inform them that there is no compensation for participation.

Data Storage and Transcription

Interviews were recorded on an iPhone or a small tape recorder. While no identification was requested, it was possible that some responses could have contained information that could identify a participant. In fact, I eliminated some quotes and demographic information from students to avoid responses being linked back to individual student participants. Therefore, the computer transcripts are password protected and the recordings were moved to the CU server.

The recordings were transcribed, and identifiable information was redacted. The recordings will be destroyed one year after the research is completed. Participants have been given pseudo names. Participants decided what information to share in the interview. Again, participants were not identified in the data that are retained.

Data Measures and Analysis

Thematic Analysis

The themes important to the student experiences were identified through thematic analysis (Braun & Clarke, 2006). This is a qualitative research method for identifying, analyzing, organizing, describing and reporting themes within a data set (Norwell, Morris, White & Moules, 2017, p. 2). Braun and Clarke (2006) argued that thematic analysis is a useful method for examining the perspectives of different research participants by highlighting similarities and differences and generating unanticipated insights. What is specific to thematic analysis is that it seeks to theorize the sociocultural contexts and structural conditions. This validates the individual's account. (Norwell et al., 2017).

The phases of the process are described in the table below, taken directly from Braun and Clarke (2006, p. 87), Boyatzis (1998) and Nowell et al. (2017) with additions relevant specifically to my research.

Phase 1: Becoming familiar with the data

Read the transcripts several times to note initial ideas.

Phase 2: Generating initial codes

Encode features of interest across the entire data set and collate data described by each code.

The process of induction: In the case of my research, codes were generated by the hybrid process of combining *a priori* codes and ones created from the student's responses in the

transcripts (Braun & Clarke, 2006). This method is termed induction: as transcripts were read repeatedly, note was made of unanticipated results, that is, ones not expected *a priori* due to literature or prior observations.

These were given codes if they appeared to be significant for one or more of the following reasons: *i.* if they were associated with strong negative or positive emotions; *ii*. if they held promise for a deeper understanding of experience; *iii.* if they offered information useful for remediation of negative experiences.

If such comments were received from even one student, they were assigned a preliminary code. This code was retained if at least one other student made a similar comment. The wording of the code might be adjusted with additional occurrences to increase its accuracy in describing the experience of the participant.

Phase 3: Searching for themes

Collate codes into themes. In the case of my research, two themes were *a priori*: Race, Microaggressions and Low Diversity; and Sense of Belonging. The theme of Incongruence was unanticipated. The fourth theme, Experience, was *a priori* but the extent to which it is multifactorial, ambivalent and variable over time was not anticipated. Therefore, it is an example of the value of the hybrid approach.

Phase 4: **Reviewing themes**

Themes and subthemes were verified by team members. Note, for this research study, 'team member' refers to the co-coder. I worked closely with the co-coder on several transcripts, refining the codes, after which we coded independently and verified agreement in virtually all cases.

Phase 5: Defining and naming the themes

Team consensus on themes was verified.

Phase 6: **Producing reports**

Member checking was conducted. In my research study, member checking was done by having a select group of students verify my interpretation of their transcripts.

Data Analysis

I used the Report of Themes format employed by Braun and Clarke (2012, p. 68). I analyzed the data by clustering the coded quotations into themes and sub-themes. In addition, I inserted quotes from participants to convey the richness of responses from the in-depth interviews by interpreting coded responses and comparing that data to the literature.

Study Limitations and Delimitations

Two limitation are the recall accuracy and the possibility of researcher bias. Recall bias is when the participant may not have perfect recall of past experiences. The social work approach trained the interviewer to use affect as a method for determining accuracy of recall. For example, the interviewer must be alert to nonverbal communication, i.e., body language, posture, facial expressions and/or other expressions of emotion. This helps to ensure trustworthiness of recall and reporting. Nowell, et al. (2017) define trustworthiness in qualitative Thematic Analysis as follows:

> Researchers must demonstrate that data analysis has been conducted in a precise, consistent and exhaustive manner through recording, systematizing and disclosing the methods of analysis with enough detail to enable the reader to determine whether the process is credible.

In this research study, using the Report of Themes allowed for exploration of rigor. In addition, by the fourth interview coding the transcripts revealed consistency of certain themes. Only a minimum number of codes emerged thereafter, suggesting saturation of the sample group.

A delimitation is researcher bias is a constraint. The research proposal seeks to minimize or eliminate bias by design. The researcher does recognize that her prior observations and her personal history have predisposed her to ascribe a pivotal role for Sense of Belonging in student experience over other possibilities. The thematic analysis approach assures that other factors emerge that may be equal or more important than Sense of Belonging.

Chapter 3 Summary

This chapter has reviewed all aspects of the methodology. My research documents URiM student experiences using methods informed by social work theory and Ecosystems Theory with an emphasis on psychosocial factors. This approach is holistic, examining student experience, academic and not, both currently and during the undergraduate years. Five influences on the design are given. Particularly important are major gaps in methodology found in the existing literature. This research seeks to fill those gaps. The advantages of a social work approach, rarely used in medical education research, are also given. A thematic analysis was applied. As discussed above, this interpretative method is particularly useful for this research because it places the experiences of individuals in a sociocultural context. Taken together, these methods produce results in a form that can be directly applied to efforts to improve the experiences for both URiM and majority students.

CHAPTER 4: FINDINGS

The overall goal of the Research Questions was to obtain factors affecting URiM student experience at the CU SOM with the specific goal of improving those experiences. Particular attention was paid to the role of Sense of Belonging in shaping these experiences.

This chapter presents the results of the Thematic Analysis of the responses to the interview questions. In the case of my research, the *a priori* themes were Overall Experience, Race, Microaggressions, and Low Diversity and Sense of Belonging. The theme of Incongruence was unanticipated and emerged (Incongruence nd). The extent to which it is multifactorial, ambivalent and variable over time was not anticipated. Therefore, this is an example of the value of the hybrid approach.

A major contribution of this research was a new definition of Sense of Belonging that emerged from the thematic analysis. The analyses of student's responses presented in this chapter resulted in this new definition. The new definition is, Sense of Belonging is an emotion that an individual experience when needs align with the psychosocial, environmental, cultural, historical and/or structural domains of the system in which they find themselves. Sense of Belonging is multifactorial and changes over time with the changes in the student's ecosystem.

Using the Ecosystem Model and social work assessment allows for the integration of structural ways to understand the student's individual situation and how the system interacts with their needs. This new and comprehensive definition reflects the fact that individuals can evolve in their requirements while the ecosystem is also changing.

Themes and Analysis

The four themes identified for this research student are 1) Overall Experience, 2) Impact of Explicit Racism, Microaggression and Low/Insufficient Diversity 3) Negative impact of

incongruence between messaging and reality and 4) Sense of Belonging. This chapter provides the analysis of the interviews and themes. Additional discussion with respect to the research questions, the existing literature and theoretical framework is given in Chapter 5.

Theme 1: Overall Experience Was Multifactorial and Dynamic

URiM student experience is multifactorial, including positive, negative and ambivalent experiences that often occur simultaneously and can change over time due to alterations in the student's ecosystem. Particularly striking are the self-initiated efforts by the students to improve their overall experiences. The four subthemes were ambivalence, culture and climate, social support and ecosystem successes and failures.

The first unexpected result of these interviews was the complexity of the students' accounts of their overall experience. Half the students were initially guarded with such answers as: "mixed bag," "highlights...but clear lows,'' and "okay". Particularly striking were the four students who initially gave strongly positive answers such as "amazing," "Overall, it's positive," and "overwhelmingly positive" but followed these immediately by negative statements. This discrepancy between initial and subsequent responses may have multiple sources. Kate's answer reflects this ambivalence:

> Now, yes, but that's taken a lot of convincing to myself. Initially, when I came here especially after that initial encounter, I felt like I had made a wrong decision about where I chose to study. Fortunately, when I was applying to medical school, I chose to be a part of this institution and I felt for a long time that I had made the wrong decision in doing that, but I think over time I've been able to build up the support system with affirmation that I didn't necessarily know I needed and now I feel like I was meant to be here at this school.

Ambivalence

The negative aspects of the experience which leads to the subtheme of ambivalence is caused largely by the low racial and economic diversity of the SOM student body and the many associated impacts of that low diversity. Jack followed his "overwhelmingly positive" with an immediate hedge: "that's completely opposite in the sense that I don't really see myself represented in many of these spaces." This is echoed by Kim who said initially, "overwhelmingly positive experience" but quickly followed with "…. I don't feel that those people feel like they have a safe home to express those opinions, which I think is important." Beth said, "There's been some good, some bad, some stressful things ... we don't feel our class is very well-represented when you think of ethnic minorities."

Low diversity can have many consequences in both psychosocial and academic realms. (Thomas, 2011). Past research discussed in Chapter 2 indicates that URiM students tend to differ from majority students in at least some of their goals for attending medical schools, often motivated by a need to return to help their own communities and to choose the lower-paying field of family medicine (Guiton et al., 2007). This is reflected in such statements as that of Viv who said, "I've had a good experience"....but quickly followed this with:

> I felt like people are in different tracks of being a doctor…. their intrinsic motivation (is) slightly different from me. My experience during the first few months of the first year showed me that maybe I'm not going to be in sync with everybody...

Ted feels lack of diversity has negative consequences for the culture:

> I think the policies at the higher level have done a good job to make it a more collaborative and inclusive environment. But at the same time there's still a lot of disparities that exist.

The student accounts above reveal ambivalence, holding contradictory feelings about their experiences as negative and positive. Students report this ambivalence caused by low diversity.

Culture and Climate

Comments about culture and climate overall were mixed, including some positive, but more negative, criticisms. Students recognize efforts on the part of the SOM to make improvements in climate and culture, particularly with respect to curriculum. Ted says:

> I think the Colorado School of Medicine really tries to incorporate a non-competitive environment and they've taken policy, procedure changes that make sense. Like making classes pass and fail I think has done a really great service to the camaraderie and reducing competition. So, I think the culture has many aspects of helpfulness and collaboration that are great positives.

Kim refers to the composition of the student body and how at times, the culture and climate feels supportive which contributes to an overall positive experience at CU SOM:

> I would say that the climate of our school is largely left-leaning, which for me is a very comfortable space. I think being in an environment where I feel like a good number of people share my perspective on certain social issues that are going on in today's world, empower me to have conversations with people who might disagree, and not feel like I'm in a place of being attacked, which leads to me being able to be more receptive and more calm, and have positive conversations with people who disagree with me.

Tom also gives a generally positive picture of the culture, and like Kim, focuses on fellow students:

> There have been a few misunderstandings, but overall, I haven't felt any harmful interaction, or anything that was prejudicial to me. And the same for the support of administrative workers and everyone. It has been an accommodating environment so far …but you can regularly see a few microaggressions.

Tom notes that in fact the school is divided into microclimates and microcultures:

> I came to this school expecting that the student body would be more homogenous than it actually is, not in the sense of ethnicity or anything, but in the sense of culture, my said values, if people were more liberal or more conservative, or how un-educated they are about social issues. I think now it's divided into microclimates and microcultures.

The reference to microclimates and microcultures at the CU SOM suggests the climate and culture is small and/or restricted and differs from the climate and culture for non-URiM medical students overall. This is metaphoric. It conveys how differences inside of a majority institution can diminish your confidence; increase your awareness of under-representation and lack of race concordance in faculty, and other areas of leadership in the institution. The theme of lack or low diversity in the CU SOM has been reiterated repeatedly both in this study and also the pilot observations which inform this study.

Hierarchical Culture. Specific aspects of climate and culture emerged as hierarchical, competitive and non-supportive. Four students reported a hierarchical, competitive and/or non-supportive environment. Ben feels the culture is hierarchical and thus particularly difficult for URiM students to understand and navigate:

> I think it's a difficult one. I think for any student it's difficult, and especially if you're coming from a background that is, one you don't like, if your family didn't go to college,

> that's just in and of itself a challenge, family, no one in medicine, that's a challenge in and of itself. The culture ... in academia and in medicine in general is an elitist culture, at a baseline. That's why there's a higher IQ rate, there's students with short white coats, nursing staff wear certain colors, PT wear certain colors, doctors wear long white coats, other highly trained professionals wear the garb of their profession. It's very apparent there's a hierarchy in medicine, and I think that's apparent since the first day that you're here, for sure.

Competitive Culture. Roger and others note the culture can be competitive, "You're in a pool of sharks." Beth echoes this but gives a mixed message, saying, "within our cohort, everyone's nice to each other but I think there's an underlying distrust or...it is competitiveness." Kate also sees a relationship between the characteristics of medical students and negative aspects of the climate:

> It's a tricky climate because I think overall it can be a fairly negative experience just because you have a bunch of type A personalities coming into the same space, all high achieving people trying to get to an even higher level of achievement, which kind of makes the environment kind of prone to negative or even fake interactions amongst your peers.

Non-Supportive Environment. Ambivalence is demonstrated by Tom who finds the culture inadequately supportive, saying "it's not malignant, it's receptive" but "not as supportive as I would like it to be." Many students identified these factors of the CU SOM climate and culture as contributors to the student's both positive and negative experiences. Using a solution-focused social work approach informs a very concrete direction for changes in the hierarchical, competitive and non-supportive environment.

Social Support In and Out of CU SOM

Support systems, both institutional and personal, appear to have a strong, and possibly even disproportionate effect on URiM students. Several students indicate their social support systems come from a variety of sources: either from the CU SOM or from student's own self-initiated efforts. Support may also come to minimize the negative effects and/or experiences at CU SOM.

One example of a self-initiated social support system was joining an affinity group formed in response to student demands by the Office of Diversity and Inclusion. Ted says: "I think our groups that we have on campus, like Latino Medical Student Association (LMSA) have been great." Ted's involvement with this group was self-initiated. His expression of excitement and enthusiasm was most likely because he is now a member of the "very" group he'd previously expressed would contribute to his unmet need for social support. This factor conceivably contributes to reducing the effects of negative microclimates and microcultures.

Many people find support from family and friends. Roger succinctly captures this with his response to the question about support: "family, my friends, my parents, got a girlfriend,she's been supportive." Tom has a similar experience, "I feel support from friends, support from my wife, I feel support from family, so I feel I have plenty of social support." Tom's overall expression showed he was content and happy with this statement. "Overall they've been very good. I've built very strong friendships and made amazing friends."

Being a medical student can complicate former relationships. Jack feels the need to have social support both on and off campus, and in both cases, to have an underlying reason for the connection: "I've created a small network of good friends, particularly people of color on this

campus … we seem to unite because there are not that many of them … it's great collaborating with them."

Off-campus, he stays connected with old friends but is now questioning whether he can maintain this cohort out of concern for his professional identity on campus:

> But now it's been a lot more challenging because I'm trying to protect my professional identity, and a lot of my friends who are part of that DJ crew, let's just say that I wouldn't want them to make my colleagues or my mentors kind of like, 'You shouldn't be hanging around these people,' because I know deep down I probably shouldn't be hanging out with them, but they're my friends, and I'm a strong believer in self-control in the time being.

This demonstrates the internal conflicts between identity and self-determination. URiM students must negotiate on a daily basis multiple identities and the intersectionality of those identities; racial/ethnic, gender and sexual orientation, socio cultural identities while forming their professional identities.

Ecosystem Successes and Failures

Overall System Successes. Overall, URiM students did not seem to be negatively impacted by multiple deficiencies at the system level of the SOM. When those deficiencies occur, it is because most of these students did for different reasons do not access the resources available. However, based on my pilot observations and various encounters with URiM students during coaching and mentoring sessions, I am frequently surprised when students express their lack of awareness of the resources available and how to access them as a proactive success strategy rather than a retroactive punitive necessity. Overall, students expressed positive interactions with faculty, administration and other aspects of the CU SOM system. Knowledge of

the availability of these resources can have a positive effect on URiM student experiences. Kim reports, “I think that the people in the administration and the faculty are there for everyone. Whether or not people access them has more to do with the students’ posture than it does the administration.” Jack said:

> Having these types of support services in place on campus is good because it makes me feel like people do care and people do want to see me succeed. Knowing these resources are in place, it kind of shows me that the university is really committed to supporting us.

However, other students reported some deficiencies in the overall system as described below.

Academic Support Successes and Failures

Only one student volunteered a negative experience with faculty support. It’s worth noting that this experience was not self-initiated. Beth reported:

> I really only had one negative experience. One negative experience was a resident, who in front of the attending, just spoke to me very harshly. In the moment, the Attending (physician) was actually really great. She was able to stop her and reel her back a little bit.

Availability and access to academic support needs to be visible. Some students arrived at the SOM with the knowledge of how to access academic support but others do not. Kim suggests that if the student does not access help, it is their choice. However, Jack feels that not all students are necessarily aware of the availability of support:

> Yeah, I feel like I have had good access. I’ve used the writing center in the past. But I think again, I feel like I, in a way, have an advantage to this because I’ve

> been on this campus prior to starting medical school, so I'm already kind of familiar with what resources are available. If I put myself in a position of a student who barely got to this campus, I think it would be much more difficult to access those services, because I wouldn't know, really, that they exist or what they could do for me.

Three students felt no need for academic support because they have already received it as undergraduates and thus they were provided with skills and knowledge about how they best learn. As Tom said:

> No, because I have my own way of studying, my own way of doing things. I haven't really sought a lot of help, so I can't say that I got a lot of it, so say that I was not able to. But I also did not have any issue with that.

Ted concurred, saying: "No, I'm fortunate to not really have to dive deep, too deep into tutoring or any academic support like that." Ben also described how having prior knowledge and understanding of how he best learned was an asset he brought to his medical school education:

> For STEP, because I had the experience we had with a learning specialist that was available in my undergraduate program, I felt that I was like, I know what I need to do to at least pass this thing, and to at least keep going in my training, and I think that that's good for me right now.

Several students had positive experiences with academic support. In some cases, students volunteered the information that this support came from faculty members and in one case, with the learning specialist.

Viv is one example of a student who expresses satisfaction overall. However, she feels the need to reach out for support instead of faculty offering support.

> I think with faculty, my experiences have been really great. If I reach out to faculty, they are responsive, they seem helpful. They see that they want to help and point me in the right direction.

Kate described positive experiences with faculty, but made note that the experiences were self-initiated:

> I feel like after some initial encounters, I felt I had to seek out my own support system amongst faculty. So even my mentor in research that I work with at children's, I found her by accident, my first year and so I just started working with her after speaking with her and things like that. I think I've been able to navigate and find different people in different sectors on my own that have been supporting me, but nothing really directly that was handed to me from the school.

Kim was delighted to describe the support she received from a faculty member, adding the support changed a negative experience into a positive experience:

> I'm meeting with one of the faculty members, and not only was he receptive, and supportive, and kind, he helped make a game plan that gave me space to get better. He was able to facilitate me moving a couple of exams. He was able to connect with my block directors over required sessions. It turns out that I just needed a little bit of space and a little bit of time. He took what could have been a really negative experience and made it really positive.

Viv also reported seeking out help from the learning specialist: “I’ve been fortunate that for STEP, I knew I needed the support, and so I reached out to a learning specialist that was helpful.” Taking together these students' accounts of how they received support, one potential interventional strategy should focus on ways students are informed about what resources are

available to them. Only one student volunteered a negative experience with faculty support. It's worth noting that this experience was not self-initiated. Beth reported:

> I really only had one negative experience. One negative experience was a resident, who in front of the attending, just spoke to me very harshly. At the moment, the Attending (physician) was actually really great. She was able to stop her and reel her back a little bit.

Students reveal a wide-range of individual differences in their needs for academic success including dialogue and direction in how to ask for help proactively. CU SOM has services and resources that are beneficial to a student's academic success. However, an enhancement to these services and resources from a solution-focused approach would need to include increased visibility and accessibility. This would include a coordinated effort between the Office of Student Life and the Office of Diversity and Inclusion.

Systems Failures: Board Scores and Mentoring

System failures can be categorized by two things. First is the pressure and repeated messaging received about the importance of board scores. Second is the lack of the mentorship that can assist with navigating the medical school experiences. This is exemplified by Viv's and Tom's description of the two factors named above. Viv states:

> I think in medical school a lot of value is placed on grades and on the numbers and you keep hearing that voice from so many different people that oh, if you don't get this...I mean we'll really work hard to match you or we'll really work hard so you can get accepted here...it feels like we have to be robotic to be good and to have an honor or to get this crazy Step 1 and Step 2 scores and people...it's like you're a performer and you

> are in some way, that you need to perform, and you are a performer and you need to make sure you've got your stuff together.

The need for mentors to guide students through the medical school process was expressed by several of the students. Tom sums this up best:

> For research, I got something, but they always take quite a while and some of the things fell through, and it hasn't been ideal at all. And for mentorship, I tried to ask for help from people, like third, fourth-year, they haven't got back to me.

Tom seemed very frustrated after expressing his feelings.

> And I think a better support from the institution would be better. And I think as a case for under-represented students and some marginalized groups, one of the big things is we're an out group, and we don't know what's happening, we don't know how to go through here. We don't have this experience.

The need for mentorship is particularly acute in students who do not have a physician family member to help them navigate medical school. Tom describes this as a negative impact on the medical school experience:

> Especially because most of my classmates have family members that are physicians. They come from an environment where being a physician is normal, being a physician is more normalized, where they can ask family members how it is, what is it you do, what connections you should get, what should they prioritize, things like that, that I just don't know.

Tom's expression had moved to frustration.

Overall, students identify areas in support services that focus on assisting students to navigate the medical school experience including mentors at every level, MS 1 - MS 4. They also

need other faculty members engaging not for punitive reasons, but to build relationships and an inclusive community at CU SOM.

Change Process

Three students demonstrated initiative in choosing experiences at the medical school that resulted in a positive result. This is clearly demonstrated in their statements and with the ease (reflected in the relaxed body language, facial expressions and tone) and confidence with which these such statements were reported. Ben said:

> I think overall it's been good, but I do think that I was very cognizant of making sure that I got the experiences that I wanted, and I picked the experiences I thought would be beneficial for me, and also stayed away from areas I thought weren't going to be productive to my own learning.

Roger, a fourth-year medical student, reflected more of a need to support others than to initiate behavior that would be seen as competitive. His desire was to not become a threat to others or be interpreted as a non-team player:

> But I feel like you give what you get, and you get what you give. And so, I was usually helping people out, and making them look good and stuff like that. And then, it was returned back to me. That made me a whole lot happier during third year and made it sort of like a coast through the whole thing instead of being stressed out.

Kate described positive experiences with faculty but made note the experiences were self-initiated.

> I feel like after some initial encounters, I felt I had to seek out my own support systems amongst Faculty. So even my mentor in research that I work with at Children's, I found her by accident my first year and so I just started working with her after speaking with

her and things like that. I think I've been able to navigate and find different people in different sectors on my own that have been supporting me, but nothing really directly that was handed to me from the school.

These self-initiated experiences demonstrated resilience and student's awareness of how their resourcefulness directly contributed to changing their negative experiences into positive experiences.

Theme 2: Impacts of Racism, Microaggressions and Low/Insufficient Diversity

Explicit racism, microaggressions and low/insufficient diversity contributes to a negative culture and climate and dissatisfaction with the medical school system. In addition, they have a negative impact on the student developmental change process.

Effects on Culture and Climate

A few students feel the overall climate is a microcosm of what is in the country at-large, although in some cases they initially felt that the SOM would be more advanced. This leads to a resigned acceptance. This one quote serves as an example. Roger notes:

> Well, the climate here is the same as the climate, well you can't really disentangle it from the societal climate, and so that's going on. So, it's a huge fork in the road, people who want the old American values, and who secretly want the old American values, who you don't know have support for that type of thing. And then those who don't, who have to still keep living, and feel like that's the climate, I guess. And then you just never know where somebody stands until they tell you, or you derive it from your interactions with them.

Thus Roger seems to regretfully accept that the culture and climate of the SOM cannot be changed to allow for different political and societal views to be expressed. Developing a culture

and climate of openness and welcoming of different opinions would be one factor resulting in changing students' experiences from negative to positive. This includes how students interact with peers, faculty and other stakeholders in the medical education environment.

Racism and Microaggressions

Kate feels there has been some improvement but cites a structural cause for on-going issues related to racism: “I feel like the culture at our school overall, it’s gotten better, but I would describe it as still very white male dominated and paternalistic in nature.”

Viv detects microaggression in the following:

> There are so many students that don’t want to do their rotations at Denver Health because it’s weird there. That’s what students say it is...Okay, if you say it’s weird, then being in class with me must be weird because the population at Denver Health is underrepresented, and I’m underrepresented.

Ted feels lack of diversity has negative consequences for the culture:

> There have been a lot of incidents in this first year that I think have caused some distress towards our group, particularly myself. The fact that we've dealt with multiple instances of racism within our own class cohort. The fact that we're identifying a lot of needs that are not being met and seeing where some of the holes in the curriculum or educational experience exists has really taken away some of the positive aspects of how supportive everyone is. Because we know traditionally, it is privileged, white students who occupy the seats and at CU that's no different. That's still 80% of the class. I think the policies at the higher level have done a good job to make it a more collaborative and inclusive environment. But at the same time there's still a lot of disparities that exist.

Students experience both explicit and implicit racism and microaggressions from multiple sources, with the predicted negative impact on their experience at the SOM.

Jack regrets the racism he's observed in a culture that he finds otherwise to be generally supportive:

> The fact that we've dealt with multiple instances of racism within [our] own class cohort and the fact that we are identifying a lot of needs that are not being met has already taken away some of the positive aspects of how supportive everyone is.

Kate experienced overt racism early on in her time at the SOM that affected her experience for the remaining year:

> I think overall, there's been more positive interactions than negative, but I think with me, with my first year of medical school, one of my first professors that I worked with, there was an extremely negative experience based off of my race, which kind of set unfortunately a negative tone for the rest of the year, but I would say overall by now it's okay.

Beth experienced racism when she was introduced to a group as being included in a research study due to her race rather than her research ability. Furthermore, she was concerned about the impression of her professional identity and abilities from people who could potentially impact her career prospects in the future:

> …. recently in this new research component that I'm in, I'm not ... I feel that it's been mentioned by researchers that I'm going to work with or indirectly will work with, who will be the mentors and who will write me letters of rec ... The way that I've been introduced by them to their people is like "Oh, this is Beth. She's a medical student and she's doing this research here. And she has this grant …. And

she's a minority." It's always ... I'm like, what does that matter? Yeah. Then another ... recently in this new research component that I'm in, I'm not ... I feel that it's been mentioned by researchers that I'm going to work with or indirectly will work with, who will be the mentors and who will write me letters of rec ...

Beth continues in expressing her dismay about this reflection on her abilities:

> I think part of this grant that I'm attached to does have a diversity component to it, which is fine if that's what I'm under. But I don't think I like being introduced as the minority student, because it's like well why do we need to say that? I'm not here ... I want to do research because I'm capable of doing the research not because of ... Oh, yeah. Well, she's just a minority doing research. So that's where this, I think so far, I have found myself a little marginalized.

Surprisingly, there was only one reference to sexism in the data. Kim felt that a negative experience might be due to a combined assessment of her gender and race but concluded that it was more of a "gendered statement":

> Faculty, I would say that I've had more negative experiences regarding being a cisgender female than I have had outright instances of racism. Mostly centered around my appearance, and whether or not I'm qualified to be or should be in the field of medicine. Sort of more like a dismissive perception. Which I think could be a combined assessment of my gender and my race, but the way that it comes out is often more of a gendered statement.

Tom cites microaggressions as a regular occurrence: "Overall, I think the school and the class is very accommodating, but you can regularly see a few microaggressions." Jack also encounters microaggressions:

> I have never felt like I was kind of directly attacked in terms of racist comments and things like that, but there's been several moments where there's a lot of microaggressions that I've encountered, and I think that's just kind of inherent with people's biases and things that they have.

Microaggressions can be verbal (explicit) and non-verbal (implicit). Jack feels invisible when his attempts to interact with other students are ignored:

> There's been at least three instances where I'm walking by somebody and I'll nod my head to acknowledge them, or say hello, say something, and they just don't have it, they'll just completely walk by. And I know they hear me, and I know they see me, but I feel invisible. I feel like I'm not good enough to be ... I guess I'm not part of the cool people crew. I'm more part of the social justice warrior crew, I guess, and I don't want to come off that way, but yeah.

Many URiM students identified multiple areas where racism and microaggressions negatively impacted their experience at CU SOM. Those areas include negative opinions from their peers about the populations served at the community hospital where all students must have a clerkship experience, areas in the curriculum, and other aspects of the culture and climate at CU SOM.

Overall, Theme 2 has shown a connection between low/insufficient diversity, and racism and microaggressions. This has a direct negative effect on student experiences with the culture and climate at CU SOM. This leads to dissatisfaction with their interactions with peers, faculty and other stakeholders. Students provide recommendations on changes they would like to see related to mandatory bias training at the student and faculty levels.

Theme 3: Negative Impact of the Incongruence Between Messaging and Reality

The discrepancy between messaging about diversity issues within the medical school environment and the experience of URiM students leads to disillusionment and ambivalence. As one student says, “what they are advertising isn’t what they’ve sold.”

Students were disappointed to find that the culture and climate at the SOM are not what they expected in terms of acceptance and support of URiM students. Kate says reluctantly:

> I would say, and I hate to say it, but I think to some extent, I think overall, a lot of people like to endorse this idea that it's extremely diverse, but when you're actually in the midst of it, you realize that that's what they're selling isn't really, what they're advertising isn't actually what they've sold.

Viv also finds that her daily experiences and that of her classmates does not reflect the schools stated values:

> I feel like there’s this culture that.....we appreciate honesty, the honor code, diversity, inclusion, different people ..but what I and my other friends experience on a day-to-day basis is a little bit different than what the school values or what we see our other colleagues do in certain situations is not the culture that CU publicly speaks about.

Jack feels there is a need for some improvement and remains dissatisfied with the rate of change:

> Yeah, I think the culture in terms of medical school specifically, I feel like we're trying, we're trying really hard to have an inclusive culture of respect and acceptance and inclusivity and equity. But I feel like at the rate that things have been going on in terms of what's going around in our country, in our world, I feel like it's not matching up to those expectations.

Students may feel incongruence at the level of their classmates as well as at institutional level. The incongruence discussed above occurs at the institutional level, but Kate is similarly disappointed when she encounters it at the level of individuals:

> So overall I think I've met a lot of really good people, but I think there's been many opportunities for people to show where they stand and where their character lies, when it comes to more of the difficult topics, and they've proven to not be as open and as diverse as I think they believe they are. Students are recruited to the CU SOM under the messaging that the school values diversity. However, when they arrive, they often experience first-hand racism, microaggressions and lack of support. This can result in a lowering of motivation and a negative impact on student well being and their developmental change process. Finally, they will lose interest in being an ambassador to recruit other URiMs to CU SOM.

Theme 4: Sense of Belonging: Multifactorial and Dynamic

Pilot observations by this researcher over a period of eight years suggested that a major determinant of the quality of URiM student experience is the extent to which they feel they belong in the medical school. One factor alone or in combination with others can impact Sense of Belonging positively or negatively. As with overall experience, this can vary over time depending on changes in the student ecosystem.

Students are often conflicted about whether or not they belong in medical school, often for multiple reasons. Viv's response reflects this ambivalence. She is unsure if she shares her classmates' motivations for a medical career. She is also unsure if she has the necessary personality traits:

> Even though everybody wants to be doctors, they necessarily have a different approach, or their plans, or their intrinsic motivations are slightly different than me...So I didn't feel like I belonged in the larger community of medical school...socially and psychologically, I have come to terms that it's not going to be a "kumbaya" with everyone. I'm not sure if I do or I don't know if it takes a certain type of personality or a certain type of trait to fit in, just so that I can fit in because I want to be…

Her body posture and her eyes conveyed sadness as she spoke.

Sense of Belonging can change through time, also for multiple reasons. Kate's response shows the dynamic nature of a Sense of Belonging. In this case, she self-initiated building a support system that resulted in feeling that she belongs:

> Now, yes but that's taken a lot of convincing to myself. Initially when I came here especially after that initial encounter, I felt like I had made the wrong decision about where I chose to study. Fortunately, when I was applying to medical school, I chose to be a part of this institution and I felt for a long time that I had made the wrong decision in doing that, but I think over time I've been able to build up a support system with affirmation that I didn't necessarily know I needed and now I feel like I was meant to be here at this school.

In this case, the student herself solved the problem of lack of belonging by building a support system that she did not initially realize she needed. Student assessment of their level of effort and academic capacity can influence their Sense of Belonging positively. An unanticipated result was the fact that student level of effort is considered by some students to be a necessary component of sense of belonging. Jack makes this clear:

> I feel like they don't care about me as much. In a way, I kind of feel disconnected in that sense, and I feel like I have to prove myself and work harder to be noticed and to be accepted and respected like other white colleagues.

This is confirmed by the three students whose level of effort has given them a sense of belonging. They also feel they have the academic capacity to succeed. Tom said: **"**I do my best, I work very hard, and I have the capacity to be here. I don't see any reason why I shouldn't be here."

Roger combined these traits with the external evidence of his ability:

> So, if you feel like you don't belong and then you are where you're in the top quartile or whatever, you're doing what you're supposed to be doing, and it's like, 'Oh, okay, I'm actually doing well, so I guess I am supposed to be here. If anything, I'm thriving here.'

Ted made a similar assessment: "Do I belong here? Am I credentialed to have a seat at the table? Yeah, I feel like I do belong in that sense."

A major conclusion of the interviews was that students may feel a Sense of Belonging in some spheres but not in all areas. However, Tom, Ted, Roger and Jack reveal a lack of Sense of Belonging in other areas, in common with many students. These factors are discussed below.

The Effects of Diversity, Race and Socioeconomic Status on Sense of Belonging

Ted demonstrated how his under-representation undercut his conviction that he belonged at the SOM, leading to ambivalence about his belonging**:**

> Yeah. I feel like I do belong in that sense. Do I belong as, am I one of just many passing faces on this campus that you regularly see? Probably not. I don't think I identify with over 90% of the individuals who walk around these sidewalks.

Jack states: “...looking at the entire class, I don’t feel that I’m part of this community. In terms of kind of belonging, I think that’s completely opposite in the sense that I don’t really see myself represented in many of these spaces.”

Lack of diversity can trigger impostor syndrome. Roger says: Now as a fourth-year student I feel like sort of, but yeah, at the beginning I was, I think this is like imposter syndrome. Probably felt by everybody I would say, but probably felt more by a black guy, who's the only black guy in the class.

Kate describes a negative encounter with peers and its impact on her feelings of lack of Sense of Belonging:

> Conversations have been had amongst our classmates, and even if ... There's just a certain lack of empathy, I think in our environment, where if they're not personally experiencing it, they can't fathom that someone can be experiencing it and they don't want to at least empathize or even sympathize with the experience. They just like to believe that they don't exist.

Beth and Jack show how the intersection of race and SES can negatively impact a Sense of Belonging. Jack describes this impact by stating:

> I think that a lot of my colleagues don't really think about that in terms of, what if we do an activity that's more inclusive of people's socioeconomic status? Or even birthdays, they'll throw birthday parties and sometimes they won't invite me. I don't know. I just feel like I'm not really part of the community, but I do feel like I am part of the smaller community within a larger community.”

Beth also feels the impact of a lack of resources that promote social inclusion like golf and skiing:

> Networking is like golfing and skiing. I don't do those activities and I didn't grow up doing those activities. I think that puts me at a disadvantage because I'm not going to do that. I think that's a good way to socialize and make friends, but at the same time those interactions, especially if they're with certain people, will take you to different places. And someone actually asked me, and I was like...They're like 'why don't you ski'? Wait, of course I'm not going to ski - it takes a lot of money.

Viv and Ted make clear that low numbers of URiMs may not be sufficient to achieve a culture of like-minded individuals, Viv concludes:

> You don't feel like you belong in some way because even out of the nine (number of African-American students in the class of 184) you may not 100% see something that unifies, drives the goal of underrepresented students. Why can't we recruit more students from different races and are under-represented?

Ted focused on representation:

> If the School of Medicine were to take the culture and climate of the school seriously in enacting change, to be inclusive to those who are from disadvantaged, minority or even LGBTQ backgrounds, I think we would see a lot of progress. It's too long until we see a critical mass. Faculty members too. There are no faculty representations of people of color or different perspectives.

These quotes taken together show the effect of low socioeconomic status diversity on Sense of Belonging. Specifically, being only one or a few students of color can lead to impostor syndrome, in the words of one student. Another consequence of a student body largely made up of majority students is a lack of empathy with students of color. This lack of empathy has many negative consequences including lack of understanding of URIM students' lived experiences. This could provide insights into understanding diversity of thought and potentially other cultural

aspects. This education can transfer to skills and awareness when working with diverse patients. These problems are compounded when race and socioeconomic class intersect. Students experience social exclusion from many of the activities that glue a class together such as birthday parties, ski trips and golfing dates. Students themselves propose the solution to this problem when they ask, “Why can’t we recruit more students from different races and (that) are under-represented?”

Importance of Shared Values

In the context of Sense of Belonging, shared values have multiple dimensions that can include backgrounds, opinions, experiences and motivation. The importance of shared values is summed up by Viv when she asks, “Would we (some of my friends) be really celebrated for who we are? And being accepted for who we are or are certain things valued more than what we would?” Her doubt becomes specific when she says:

> ... I like to think that I belong, that I'm accepted as who I am and maybe my contribution to the school in terms of the value I bring in terms of my background, or my opinion, or my experiences add to it. I think that I do bring value, and my experiences add meaning, but at the same time, in terms of do I belong, would I fit in, would I thrive, I don't know...

This reveals that the SOM has not conveyed to Viv and her URiM peers that the diversity they bring is an added value. She goes on to make clear that she may not share critical values with her classmates:

> I felt like people are in different tracks of being a doctor ... their intrinsic motivation (is) slightly different from me. So I don’t feel like I belonged in the larger community of medical school...Socially and psychological, I have sort of

> come to terms that it is not going to be kumbaya with everybody. ..My experience during the first few months of the first year showed me that maybe that I'm not going to be in sync with everybody.

Roger found that there were only a 'select few' of students who were 'like-minded':

> With peers, it's just been, you find a select few students who are like-minded and you maybe study with them or not or whatever. But it's only a select few because as I said in the previous statement, it's not everybody even looks at you, you know? So, that's one thing.

Here, Roger brings up an issue shared by other URiMs: Invisibility, a consequence of racism. This is further discussed in Chapter 5.

Structures of Classism Can Affect Sense of Belonging: Physician Family Member

Many URiM students identified as first-generation medical students without family members who are physicians. Students describe this factor as negatively influencing their self-perception of belonging at CU SOM.

Some students described advantages of having physician family members which can be linked to financial status, understanding how to navigate the medical school process, having informal mentoring and access to different networks as described below**.**

Sense of Belonging in its complexities can also have a dimension of classism associated with it as described by Jack:

> I don't feel like I belong, I think its very kind of ingrained in just medicine in general of having multiple generations of wealthy families and physicians. I was asked, "so what do your parents do?" I was like, my mom's a housekeeper, she just kind of cleans condos and apartments and stuff. My dad was kind of a

> manager and unfortunately my dad passed away. But none of my parents even made it past the 6th grade.

Tom details with very explicit emotions all the aspects of navigation provided by family members who are physicians:

> ... then it's more difficult [feeling a sense of belonging], especially because most of my classmates have family members who are physicians. And if you don't have people that have gone through this, telling you about the experience, telling you how it is, then it's more difficult, especially because most of my classmates have family members that are physicians. They come from an environment where being a physician is normal, being a physician is more normalized, where they can ask family members how it is, what it is you do, what connections you should get, what should they prioritize, things like that, and I just don't know. And I would like to ask people, "Hey what should I prioritize? How much attention should I pay to that? How would I go about this thing?" Because you have to gain clinical experience, and have to study and everyone does that, and I'm doing just fine. But there are a few extra things I would like to know, and they are a little bit subjective. And since I don't know anyone in that context that makes it more difficult. …. Professionally, I don't feel supported as much.

This clearly defines the complexity of navigating one's way through medical school, and the need for mentors to augment Sense of Belonging.

As identified by Tom and others, mentoring for students need to include components: how to prioritize, how much attention should be paid to certain areas, explanations of what students are supposed to do in medical school, what connections students should make. This list could serve as a strategic guideline to give URiMs additional tools they need to succeed and improve their experience.

Kim speaks about one of the advantages of having a physician in the family:

> There was a research symposium two weeks ago (hosted by the department) and I was able to present a poster. My dad came because there was a diversity lectureship, and the speaker was actually his Attending (physician) when my dad was a resident. It was really a cool experience. Getting to see the way people talked to my father, it was encouraging. …. it was nice to see how the department has grown to feel responsible and caring for me.

An unanticipated observation was the extent to which URiM students are negatively impacted by the lack of family members as physicians. They are less likely to know how to navigate their time at the CU SOM in the following ways: where to give their attention in terms of coursework, research and networking, which courses to take, how to find and use a mentor and how to form connections with fellow students and faculty.

Social Support is Necessary for Sense of Belonging

Social support was described as a factor in URiM student's overall experiences. Some students describe social support as an important contributor to their Sense of Belonging. Three students provided this description:

Kate says, "I've been able to build up the support system with affirmation that I didn't necessarily know I needed and now I feel like I was meant to be here in this school."

Jack explained: "... and a lot of people supported me to be here. Kim states:

> "I think the important thing is being able to talk with others, and sort of get reassurance that it's normal, and that we do in fact belong here. It's a sort of humility that sometimes gets in our own way; I would say is how I would describe imposter syndrome."

As reported, social support is linked to students' overall experience. This reinforces its link to Sense of Belonging.

Student Well-Being and Mental Health

Two students specifically described the importance of student well-being as contributors to their sense of belonging at SOM. However, students needed to individually seek out or self-initiate mechanisms to maintain their own well-being. Tom states:

> I don't have to feel bad about anything. I don't have to feel that I'm not good enough, and I think just going through, to have good experiences and succeeding in the past, has made me develop skills that make my mental health much better now.

A counter-intuitive result was that leaving the campus could restore a Sense of Belonging at the campus. This may be accomplished in different ways. Ben felt he belonged in medical school when he worked at a health clinic serving the Latino population. Not only was he immersed in his racial-ethnic culture, he was engaged in family practice medicine. He says this improved his mental health. Ben describes this**:**

> So I didn't really feel I belonged here until I was at third year where it was like I knew. I was very intentional in where I did my rotations...Salud Family Health Center, a health center that works predominantly within a Latino population and Spanish speaking population….. I wanted to go into family practice, which is a field that is stigmatized within medicine as not being an academic field, an easier field (which I found absolutely not being the case). So for me it was really important to go, get out of this campus for my own mental health, two to practice

> a field that was going to be helpful for me to not get deviated from the path that I set for myself.

Students connect important components of their well-being to experiences that directly involve interactions with patients and/or others whom they connect with socioculturally, or by race concordance.

Change in Sense of Belonging Over Time

Students often reported negative to positive or positive to negative change in their experiences related to Sense of Belonging. This demonstrates an ambivalence that changes over time. Viv describes this:

> Later on I felt a sense of belonging because I came to know people that had the same motivation or values that I have and so I felt like I could connect with other aspiring doctors that have similar goals or intrinsic motivation...That was when I felt like I fit into this community, in the larger medical school.

Ben finally felt a sense of belonging in his third year when he began working at a Spanish-serving health center:

> So, I didn't really feel I belonged here until I was a Third Year where it was like I knew. I was very intentional in where I did my rotations...Salud Family Health Center, a health center that works predominantly within a Latino population and Spanish speaking population…

Roger also did not feel a sense of belonging until in his fourth he was very successful in his interactions with patients:

> Now as a fourth-year student I feel like sort of, but yeah, at the beginning I was, I think this is like imposter syndrome. Probably felt by everybody I would say, but probably felt more by a black guy, who's the only black guy in the class.

Kim's doubt about belonging is eased by talking to others and realizing the commonality of her experience:

> There are many experiences that we go through where you're reminded so clearly of what a privilege it is to be here, and what a privilege it will be taking care of people's health. I think it would be rather arrogant not to question from time to time, "Am I the right person? Am I doing the best I can? Am I meant to be here? I think the important thing is being able to talk about that with others, and sort of reassurance that it's normal and that we do in fact belong here.

Kim provides a clear depiction of how Sense of Belonging changes over time. The change is strongly linked to student's understanding of what they need and how to obtain those needs within the system. The individual process of identifying the resources unattained is a factor worth noting.

Chapter 4 Summary

The overall goal of the Research Questions was to determine the factors affecting URiM student experience at the CU SOM. In particular, Research Question 2 asked what role does Sense of Belonging play in the overall student experience? This chapter presented extensive excerpts from student interviews, followed by exploratory analysis. This was followed by a thematic analysis as described in Chapter 3. Four themes emerged from the Thematic Analysis of the responses to the interview questions.

Theme 1: Overall experience is multifactorial and dynamic. URiM experience is multifactorial, including positive, negative and ambivalent experiences, often simultaneously,

and can change over time due to alterations in the student ecosystem. Particularly striking are the self-initiated efforts by the students to improve their overall experiences. The subthemes are: Ambivalence, Culture and Climate factors, Social Support, Ecosystem successes and failures, and Change processes.

Theme 2: Impacts of Explicit Racism, Microaggressions and Low Diversity. These contribute to a negative culture and climate and dissatisfaction with the medical school system. In addition, they have a negative impact on the student developmental change process. The subthemes are Effects on Culture and Climate, Negative impact on the student developmental change process.

Theme 3: Negative impact of incongruence between messaging and reality. The discrepancy between messaging about diversity issues within the medical school environment and the experience of URiM students leads to disillusionment and ambivalence. As one student says, “what they’re advertising isn’t ...what they’ve sold.”

Theme 4: Sense of Belonging: variation in causal factor(s) and time course. One factor alone or in combination with others can impact Sense of Belonging positively or negatively. As with overall experience, this can vary over time depending on changes in the student ecosystem. Lack of sense of belonging can negatively impact well-being and mental health.

A major contribution of this research was a new definition of Sense of Belonging that emerged from the students’ responses: Sense of Belonging is an emotion that individuals experience when their needs align with the psychosocial, environmental, cultural, historical and/or structural domains of the system in which they find themselves. Sense of Belonging is multifactorial and changes over time depending on the inputs and outputs within the ecosystem.

Using the Ecosystem Model and social work assessment allows for the integration of methods to understand the student's individual situation and how the system interacts with their needs. This new and comprehensive definition reflects that individuals vary in their requirements, in the extent to which a particular domain is critical for their sense of belonging over the time course, but does not necessarily interact with other factors to influence the change.

CHAPTER 5: DISCUSSION AND CONCLUSIONS

This chapter comprises the following sections: an overview of the goals, significance and results of the research; the four themes discussed as they relate to the literature; the research questions, the four themes and the contributions of this research; implications for programming and student support services; the Ecosystems Theory approach revisited; a solutions-focused model of Sense of Belonging for URiM students: a working model; and possibilities for future research.

Overview of the Goals, Significance and Results

This research is part of a long-term goal of righting a major injustice in the United States: the disparity in health care along racial/ethnic, gender, and economic lines (NAS, 2000). The current research addresses one cause of this disparity, the paucity of URiM physicians. Numbers of URiM students remain low despite decades of research and multiple programs that seek to increase their representation (AAMC, 2016). Past research by others combined with my pilot observations suggest that one cause of this underrepresentation lies in the quality of the experiences of URiM students. A disturbing number of URiM students report negative experiences for multiple reasons (Freeman, Landry, Trevino, Grande & Shea, 2016.)

There are three major incentives for improving URiM student experience.
First, performance improvement: Psychological distress can lead to reduced motivation and deficiencies in performance, and in some cases, in higher attrition (Orom et al., 2013). Reduced performance in turn impacts the URiM student's career opportunities and choice of specialty, which ultimately reduces the number of mentors and role models across all levels of medicine and medical education.

Second, recruitment can suffer: medical students who have a positive experience can become the best unofficial recruiters an admissions office can have of URiM students.

Third, ethical obligation: A core value of social work includes respecting individuals' inherent dignity and worth, to reduce pain and suffering and to enhance every individual's ability to realize their potential (Loewenberg, Dolgoff & Harrington, 2000, Loewenberg, et al., 2007).

This research used a social work approach and thematic analysis to study the experiences of a sample of URiM students at the CU SOM. The results reveal that URiM experience is complex: it is a combination of positive, negative and ambivalent responses to the environment at the individual, interpersonal and institutional levels. The results revealed that Sense of Belonging is critical in shaping student experience, and that it is complex, multifactorial and can change at various points throughout the student's time at medical school.

My pilot observations captured the raw, painful emotional depletion from URiM students' negative experiences at the CU SOM. This required me to use a social work solution-focused approach at the individual level to move students from their negative experiences to positive experiences that affected their psychosocial and emotional state of well-being at the CU SOM. For this study the term "solution-focused" is a future-focused, goal-directed approach to advising or therapy that highlights the importance of searching for solutions rather than focusing on problems (Trepper, Dolan, McCollum, & Nelson, 2006; Proudlock & Wellman, 2011).

This research study allowed students to describe and voice their negative and positive experiences using a semi-structured process that also elicited their descriptions. These interviews have implications for programming and student support services potentially improving their negative experiences. This leads to strengthening current programs and potentially developing new programs and social support systems as identified by the URiM student participants. These

key implications include changes to culture and climate, social support on and off campus, system changes for academic support and student well being grounded in the multifactorial complexities of Sense of Belonging.

Four Themes: Discussion and Implications

The complete findings and resulting four themes are presented in Chapter 4. Here, I discuss the four themes in-depth with respect to the literature, and conclude by relating the themes to the research questions and to the theoretical foundation of the study.

Theme 1: Overall Experience: Multifactorial, Ambivalent and Dynamic

> "I think overall it's been good but I ... was very cognizant of making sure I got the experiences that I wanted."

URiM experience is far more nuanced than I expected at the beginning of the study. It is multifactorial, including positive, negative and ambivalent experiences, often simultaneously. In addition, student experiences can change over time due to alterations in their ecosystem. In some cases, students initiate these changes themselves while other changes occur at the level of their interaction with the CU SOM system. The latter is open to modified programming to improve experiences for all students.

The multifactorial and dynamic nature of experience results in an ambivalence in students. A negative response would at times be countered by a positive one in quick succession, and *vice versa*. This was striking in its rapidity and prevalence. A working hypothesis would be that, having made the decision to attend the SOM, students want to believe that they made the correct decision and attempt to find reasons to support that desire despite substantial negative experiences. For example, Kate said, "it's taken a lot of convincing myself ... Initially ... I felt

like I had made a wrong decision about where I chose to study." However, her experience changed, and she concluded, "... now I feel like I was meant to be here at this school."

In my review of the medical education literature, I found no previous studies that capture the ambivalence I detected. Recognizing the dynamic nature of experience alerted me to look for causes of the changed attitude: was it in the student or the system? Could I design programs or interventions to promote positive change? Answers to these questions await future research.

It is important to ask if the ambivalence was an artifact of the interview process. That is, if being asked to reflect on their experience prompted students to give a mixed response as they thought about the experience in hindsight.

I note that another research study, identity negotiation in black women Dickens (2014), found inconsistencies in the responses of some participants. Some reported no negotiation of identities initially in the interview but then, subsequently did report difficulties in doing so (Dickens, 2014). She suggested two reasons for this discrepancy in response. First, it is possible that negotiation is not a conscious process. Second, it was clear to her that some of her participants negotiated identities actually during the course of the interview. Both possibilities exist for my results.

The dynamic nature of experience demonstrates that if observations are gathered as a snapshot of one period of time as is done in the majority of the studies discussed in Chapter 2, opportunities for improving student experience will be missed. Furthermore, when experience does change, for better or for worse, the interview method can uncover steps that can be taken in the future to improve the environment. Finally, the recognition of ambivalence reinforces the value of an interview approach by a person who is familiar with the recent history of the student's interactions with aspects of their environment and with the details of those aspects.

Kate, quoted above, continues in her reflection, realizing that "I think over time I've been able to build up the support system with affirmation that I didn't necessarily know I needed." This quote is significant for three reasons, showing the importance of social support in engendering a positive attitude, but also that students themselves do not initially realize its importance and that they are able to construct their own support system. Student interviews summarized in Chapter 4 reveal that Kate is not alone in her ambivalence or in the positive change in the quality of her overall experience. Her reflection shows a self-awareness that is not uncommon among the students and can be helpful in identifying causes and solutions to negative experiences. Reflections of these kinds appear below in the section on Sense of Belonging, a factor tightly associated with overall experience.

This study demonstrates that psychosocial factors are as significant in such student experience as systematic elements as academic and financial factors. The importance of psychosocial factors was first recognized by Hutchins (1961) decades ago, but as late as 2015, Shochet et al. (2015) in a thorough quantitative study of the learning environment at Johns Hopkins School of Medicine, concluded that they had underestimated the significance of several aspects of the social environment, including weak peer networks and a lack of Sense of Belonging. They are correct in realizing that the importance of the social system should not be underestimated. Odom et al. (2007) studied barriers and facilitators to personal and professional success in 43 URiM students from 6 schools and found that support systems predicted success. Hurtado et al. (2007), in their study of over 5000 URM science undergraduates across 75 institutions, found that peer group affected a feeling of belonging. Many of the articles appearing in the review of 28 studies by Orom et al. (2013) also cite social support as a key factor in satisfaction.

The present study, influenced in part by the in-depth interview study of Thomas et al., (2011) and in part by my previous anecdotal observations, found that support systems included family as well as peers. Indeed, in the present study, family members were considered to be the primary suppliers of support by some students. Hurtado et al. (2007) in their survey study cited above also found that family was an important component.

Future research should explore social support more completely, determining the ultimate sources of support, in and out of educational and professional settings. With that knowledge, schools of medicine may be able to both enhance social interaction within the system and support social interactions in the students' greater community. My recommendations for ecosystem change to improve student experience are given in the next section on implications and in the student recommendations in an Appendix. It is important to note both the positive and negative aspects of the CU SOM system so that future students can take advantage of support from the system while also joining with administration in altering areas in need of improvement. One of the most critical areas requiring change to enhance student experience lies in low diversity and its impact on culture and climate as discussed in the next section.

Theme 2: Impacts of Explicit Racism, Microaggressions and Low Diversity

> "I feel like overall the culture at our school has gotten better ... but it's still very white male dominated..."

Explicit and implicit racism and microaggression come from multiple sources and have directly impacted students' experiences. Students report that these experiences are from multiple sources, including microassaults from classmates that reflect societal racism. This is further defined by students' reporting, "the fact we've dealt with multiple instances of racism within our own class cohort" increases students' negative experiences. This directly relates to the learning

environment for URiM students. Orom et al. (2013) in a literature review of 28 papers provided a useful overview of assessments of learning and social environments and experiences that include discrimination and academic performance. The results indicated URiM students have less supportive environments and less positive learning environments and do experience discrimination. This is validated from students in the current research study.

Explicit racism, microaggressions and low diversity can have multiple negative effects at every level of student experience, from their interactions with the CU SOM system to their interpersonal interactions with faculty and fellow students. Racism in all its aspects contributes to a negative culture and climate and deep dissatisfaction with the medical school system. As can be seen in the results given in Chapter 4 and in the student recommendations for improvements, students repeatedly asserted that many of the negative aspects of their experiences can be traced to a lack of racial, ethnic and/or socioeconomic diversity. Lack of diversity can occur not only in the student body but also in the composition of the faculty, administrators and staff. The net effect of low diversity is that students see few peers that share their race/ethnicity and/or SES, or a culture that includes them as equals. This in turn has been shown in other research (Dickens, 2014) to lead to negative psychological effects such as anger and resentment (Fordham & Ogbu, 1986), a feeling of being invisible (Franklin, 1999), and of being an "outsider within" (Collins, 2002). These in turn may directly affect student well-being, performance, motivation and health (Dickens, 2014).

Although my research did not directly test for these effects, there are indications that they may exist and will be addressed in future studies. My present research does however suggest a link between a lack of diversity and Sense of Belonging as discussed in Theme 4 below.

Lack of diversity is seen by students (Chapter 4 and Recommendations) as a potential ultimate cause of both overt racist remarks and microaggressions from faculty, residents and/or peers at the SOM. The negative impacts on URiM students have been known for decades. Explicit and implicit racism were uncovered by Frierson (1987) in his study of URiM students. Odom (2007) and Orom et al. (2013) also noted that many URiM students report discrimination due to race. Student interviews revealed that they feel that increased diversity would have multiple beneficial effects on their experience at the SOM and they include increased diversity in their recommendations, in the Appendix.

Higher diversity may have unanticipated results with respect to the academic environment. For example, Galinsky et al. (2015) found that all groups they studied "overwhelmingly thought that racial and ethnic diversity among their peers enhanced their education." Guiton (2007) proposed that higher diversity may also increase learning in URiM students in multiple ways. For example, problem solving as a group can be enhanced by an increase in the number of possible solutions, offered by members in a diverse group.

Many students recognize that changes are being made at the SOM but would like to see an increase in the rate of change. Changes are discussed below in the Implications.

Theme 3: Negative Impact of Incongruence Between Messaging and Reality

> "I hate to say it, but I think ... a lot of people like to endorse this idea that it's extremely diverse but ... what they're advertising isn't what they've sold."

Another unanticipated finding is the negative impact of the discrepancy some students perceive between the medical school's positive self-portrayal in recruitment information with respect to valuing diversity issues, and the student's own daily experience. In addition to the words quoted above, "what they're advertising isn't what they've sold," are the words of another student: "It's a facade." Students directly reported emotions ranging from frustration and

disappointment to disillusionment (Richards, pilot observations). This may increase their feelings of 'fight or flight' response and cause them to question their decision to come to CU SOM. The tone of the responses and the students' body language reinforced this impression. Students also reported that microaggessions, racism, discrimination and feelings of not being supported reinforce this experience of incongruence (Richards, pilot observations).

I find no reference to this discrepancy between messaging and experience in the medical education literature although it seems unlikely to be unique to the CU SOM. It is possible that the particular conditions of my interviews as discussed in Chapter 1 increased the probability that students would be openly critical of the CU SOM. These conditions included my race concordance with many of the interviewees, their familiarity with me in other settings, my knowledge of all aspects of the CU SOM gained over a decade, my recognized level of trusted relationships built with students, and my office being a "safe space."

Although this form of incongruence has not been noted in the medical education literature, the psychological literature includes this definition for incongruence: "a lack of consistency or appropriateness, as in inappropriate affect or as when one's subjective evaluation of a situation is at odds with reality." (Incongruence nd.) This apparent tendency to facadism should be researched in more depth to determine if this is an opinion widely held by other URiM and majority students, and what in particular is responsible for this response. If this disappointment is common, it could be further researched to determine its impact on students. One possibility is that it could contribute to negative feelings at the very beginning of the students' medical education that might lead to feelings of distrust and a lack of connection to the CU SOM. I speculate that this could also contribute to a lack of a Sense of Belonging.

Theme 4: Sense of Belonging: Multifactorial and Dynamic

> "... I didn't feel like I belonged in the larger community of medical school ... socially and psychologically. I have come to terms that it's not going to be *kumbaya* with everyone."

For the eight years preceding this research, I served as Director, Office of Diversity and Inclusion at CU SOM. During that time, numerous URiM students appeared in my office, often in distress, and all in need of support, and seeking advice, coaching and referrals to resources for a wide variety of reasons. Several in the eight years said directly or indirectly, "I don't belong here!" Two diagnosed themselves as having impostor syndrome, one blaming the lack of diversity in the CU SOM. Impostor syndrome among URiM students has not been studied thoroughly and its probable connection to Sense of Belonging awaits further research. These observations and my literature search suggested to me that Sense of Belonging could be a major factor in student dissatisfaction with the SOM. This appears to be the case: 8 of the 10 students interviewed reported some degree of a lack of belonging. As with overall experience discussed in Theme 1, Sense of Belonging is multifactorial with one or more factors affecting it positively or negatively. Also, as with overall experience, belonging can vary over time depending on changes in the student ecosystem.

Much of the existing literature reviewed in Chapter 2 was concerned with Sense of Belonging only in undergraduates, nursing students and/or majority students. While this is useful in identifying certain factors of Sense of Belonging and its correlates, medical students face different challenges and a unique environment that differs from that of majority students in other institutions. The existing literature was summarized in detail in Chapter 2. Here, I note the results relevant to my conclusions.

Hagerty et al. (1996), working with community college students, not surprisingly found a relationship between Sense of Belonging and indicators of psychosocial functioning, but was unable to determine causality. More relevant is that they connected these two factors to SES, with lower SES being associated with depression. They also highlighted the need for social support, as do several authors cited in Chapter 2. Indeed, social support is given the most attention by previous researchers including complete treatments by Hoffman et al. (2002), Hurtado et al. (2007) and Strayhorn (2012). Relationship to campus life is important. It is a basic human need to feel that "one matters," Strayhorn (2012)

Unanticipated Results

There were unanticipated results uncovered by the interviews related to Sense of Belonging. These have not been reported in the literature to my knowledge. However, some may be subsumed in the results of other studies that lack the voices of the participants since data was gathered by surveys. My first-hand reports from interviews shed light on the nuances of Sense of Belonging and point the way to mitigations.

Effort, Ability and Achievement are not Necessarily Sufficient. The first unanticipated result was that students could simultaneously feel that they belong in one sphere but not in all spheres. For example, three students felt a Sense of Belonging due to their effort and academic ability but did not feel they belonged socially. One student said, "I do my best, I work very hard, and I have the capacity to be here. I don't see any reason I shouldn't be here." Another student reports, "If you feel like you don't belong and then you are where you're in the top quartile ... it's like, oh okay, I'm actually doing well, so I guess I am supposed to be here."

A further surprise was that these same students in some cases expressed a lack of belonging in social spheres, finding their families, and/or friends made prior to medical school,

to be their major social support. This demonstrates a complexity in Sense of Belonging that would not be uncovered without a complete interview. Studies such as by Hurtado et al. (2007) on over 5000 undergraduate science students, finding that both academic performance and peer group join family, institutional climate and diversity in influencing Sense of Belonging, cannot examine individual differences in the influence of factors. Thus, they are also unable to show relationships, positive or negative, between any two or these factors in individuals, as this study suggests.

Importantly, this result shows that the mitigation for lack of Sense of Belonging must be tailored to the needs of the individual. The students who feel they belong due to their academic ability may need support in finding an affinity group or activity that fulfills their need for social interaction, and involvement with the wider medical school community.

Sense of Belonging Can Change Through Time. A second unanticipated finding was that Sense of Belonging can change through time. Some students began to feel they belonged at the SOM only when they found a supportive social group. Others did not feel a Sense of Belonging until they had completed class requirements and began working with patients. Their connection and success with patients reaffirmed their ability and original motivation to become doctors, and this in turn made them feel a Sense of Belonging at the medical school. Again, to my knowledge, this result does not appear in the literature. It suggests many ways in which Sense of Belonging could be enhanced in first year students by including more of the experiences, such as clinical work, that bring it about. If a student chose to become a physician even in part for humanitarian reasons, the exclusive emphasis on difficult academic courses initially can make them question their career choice and thus undermine their motivation and performance.

Working Off-campus in the Community can Increase Sense of Belonging. A third counter-intuitive result uncovered both in my pilot observations and in the interviews was that students often gained a Sense of Belonging and renewed motivation at the CU SOM when they worked off campus either in medical facilities or in volunteer positions with patients and/or in URM communities. This counter-intuitive result should be explored more thoroughly in future research as it was not found in the published literature.

Family Members as Physicians can Increase Sense of Belonging. Family members who have navigated the challenges of medical school are not uncommon among majority students but virtually absent in URiM student families (Richards, pilot observations). This engenders a lack of Sense of Belonging. As one student whose mother was a housekeeper and father who had passed away said, "I don't feel like I belong...it's very kind of ingrained in medicine ... having multiple generations of wealthy families and physicians."

While I found no previous studies explicitly relating Sense of Belonging to physicians in families, two other studies do show some advantage in pursuing and succeeding in a medical career. Motivation to attend medical school was increased in undergraduates with medical professionals in their network because of increased interest and access to healthcare experiences. (Wouters, Groiset, Isik & Kusurkar, 2017). In another study, fifty percent of applicants to a medical school had a medical professional in their family. This was found to introduce self-selection bias in the pool of applicants (Simmenroth-Nayda & Görlich, 2015).

Lack of Shared Values May Undermine a Sense of Belonging. This is another finding uncovered by the interviews as detailed in Chapter 4. As one URiM student said, "I feel like people are on different tracks of being a doctor... their intrinsic motivation is slightly different from me." It intersects with diversity: race concordance may increase the probability of shared

values. I include this here because future research aimed at a recent thorough longitudinal study, demonstrated that freshman first-generation college URM students who valued the prosocial interactions of a STEM program, were more likely to be identified and remain committed to their programs. This aspect of Sense of Belonging over time increased students' motivation more than ones who did not cite that motivation (Jackson et al. 2016).

Effects on Well-Being of a Lack of Sense of Belonging

Dickens (2014) proposed that costs of lack of belonging lie in lower motivation, well-being and health. There are indications that this may be true. Reilly (2009) found in her study of 89 predominantly white female Doctor of Nursing students a significant inverse relationship between stress and Sense of Belonging. Malone et al. (2012) found over three studies on undergraduate psychology students that well-being is connected to a Sense of Belonging. Clearly, this important information awaits further research on URiM students.

The Research Questions, the Four Themes and Contributions of this Research

This research makes several contributions to medical education research. Many of these contributions would not be possible were it not for the unique situation provided by my position continuing over a decade in the medical school. The work was inspired by URiM students coming to my office in distress over their experiences with racism, a lack of a Sense of Belonging and insufficient support of all kinds. I have deep familiarity with the system level factors experienced by the students. My race concordance and life course similar to that of many of the students was also an advantage in providing context for their experiences.

A significant contribution was made by combining social work and ecosystem perspectives. The social work approach acknowledges individual differences and needs that are lost in large quantitative studies not using open-ended face-to-face interviews for data collection.

The Ecosystem Model examines the impact of all psychosocial factors from the individual to the family as well as aspects of peer interactions, culture, environment and historical features of experience. Social work is solutions-focused and led to seeking recommendations for improved experience from the students themselves.

Unexpected results that contribute to the field are the student perception of low diversity as a major contributor to a negative experience, the incongruence discussed in Theme 3, and a new conception of Sense of Belonging and its significance. Finally, student experience and attitudes were found to change over time, often dramatically, a finding that can be missed by other research methods.

This research addressed the following three research questions:

Research Question 1

What were the overall experiences, both academic and non-academic, of a self-selected sample of students from underrepresented minority populations at the CU SOM?

Themes 1, 2 and 3 combine to give a thorough answer to this question while also revealing many new areas for research and programming to improve student experience. There were many unanticipated findings and ones new to the medical education literature. Theme 1, Overall experience, captured the result that URiM experience is multifactorial, including positive, negative and ambivalent experiences, often simultaneously, and can change over time due to alterations in the student ecosystem. Particularly striking are the self-initiated efforts by the students to improve their overall experiences. Theme 2, Impacts of explicit racism, microaggressions and low diversity, made clear that explicit racism, microaggressions and low diversity contribute to a negative culture and climate and dissatisfaction with the medical school system. In addition, they have a negative impact on the student developmental change process.

Theme 3, Negative impact of incongruence between messaging and reality, was unexpected. It revealed that the discrepancy between messaging about diversity issues within the medical school environment and the experience of URiM students leads to disillusionment and ambivalence. As one student says, “what they’re advertising isn’t ...what they’ve sold.”

Research Question 2

What role, if any, does Sense of Belonging have in shaping URiM medical student experience as suggested by the trends in pilot observations?

Theme 4, Sense of Belonging, was found to play a significant role in student experience, appearing as it did in one form or another in most interviews. I found that there was variation in causal factor(s) and time course of Sense of Belonging. One factor alone or in combination with others can impact Sense of Belonging positively or negatively. As with overall experience, this can vary over time depending on changes in the student ecosystem.

Research Question 3

Do students have recommendations for improvements to the learning environment at the individual, interpersonal, institutional and/or the sociocultural levels?

Students were eager to provide recommendations and grateful to be consulted. Their recommendations echoed their interview responses, reinforcing the validity of the results. They also align with many of the recommendations I make in the section on Implications and are already being used in program and curriculum development. I feel that all research of this kind has an ethical obligation to seek recommendations from participants for changes to flawed systems.

Implications for Programming and Student Support Services

This research study allowed students to describe and voice their negative and positive experiences using a semi-structured process that also elicited their recommendations. These

interviews have implications for programming and student support services for potentially improving their negative experiences. This leads to strengthening current programs and potentially developing new programs and social support systems as identified by the URiM student participants. These key implications include changes to culture and climate, social support on and off campus, system changes for academic support and student well being grounded in the multifactorial complexities of Sense of Belonging.

Racism and Diversity: Culture, Climate and Curriculum

A major source of negativity in individual, interpersonal and institutional experiences related to culture and climate was the low racial and economic diversity of the SOM student body. As mentioned in my research findings, low diversity can have many consequences in both psychosocial and academic realms. Students recognized that the SOM is currently in the process of making some improvements and spoke specifically about the curriculum changes.

Recommendations from these students in respect to culture and climate included the following:

Longitudinal Curriculum Addressing the Effects of Race and Structural Racism

Providing longitudinal curriculum would assure that all classmates, both URiM and majority students, become aware and educated about cultural issues, challenges and systemic structures which directly affect diverse patient populations. By providing these recommended changes, we hope this would increase all students' knowledge and attitudes that would elevate increasing skills for empathic interactions and cultural responsiveness with diverse patient populations. For example, Tom:

> "I don't expect them (in context, meaning: majority students) to change. But I think they can listen and when they listen, will be able to understand. If they understand, they will

be more sympathetic. I may not hold similar values, for example, Republican, but I may understand why they believe what they believe."

Mandatory curriculum changes to include topics and discussions related to racism and microaggressions should be made. Our learners are required to have clinical rotations in systems serving minority populations. The students in this study explicitly describe the need to integrate discussion of racism and microaggressions throughout the medical school experience, and not by "allocating one day at the beginning of medical school" (Ben) to address this reality of medicine. Incorporating this longitudinally, addresses and provides space and places to re-address issues that may come up. This contributes to more well-rounded students and adds to the overall culture and climate by increasing students' positive experience because it removes the burden of the "minority tax" (Cyrus, 2017) from URiM students.

Additional contributions include reducing or eliminating negative comments from peers such as, "why are we discussing this in medicine?" This would further demonstrate how the SOM values diversity by creating climate and cultures which integrate relevant topics. This potentially reduces barriers of isolation and alienation for some students (URiM, First Generation, LGBTQ and Rural Students) and promotes a climate and culture of inclusion.

Kate states, "I think everyone can take a test at this point and pick a treatment out of multiple choice." The changes in curriculum as recommended by students (also supported by this researcher) go deeper than just "checking the box." They require a level of understanding of structural causes that contribute to racism, bias and health disparities. It is further recommended that curriculum content as mentioned above should include scenarios and videotaping. This would allow students to watch how they address these issues before going out to serve URM populations.

Student-Identified Link Between a Flawed Climate and Lack of Diversity

URiM students are committed to humanity and value advocacy as a way to speak up for social justice. However, they describe many times where they've been seen as the spokesperson for a patient, or for a particular race as a whole from a deficit or marginalized perspective. Students describe the problem more specifically, "As an under-represented student in medicine, you're going through the hierarchy of the field, but not valued as an asset or as a useful member of the team" (Roger). Academic institutions need to demonstrate that URiM students (and all students in general regardless of race and ethnicity, gender identity, sexual orientation, SES or ability status) are valued by the team for their medical knowledge and other skills and that they are not marginalized, as described by students in this study. Implementing mandatory training and education around unconscious bias and microaggressions becomes a strategy to mitigate racial and microaggressions. In addition, this would improve student experiences by eliminating negative values associated with URiM students because they come from a certain tradition, ethnicity, or culture. This deficit thinking can perpetuate racism and impede diversity.

Additionally, factors that contribute to positive experiences can also be achieved by increasing diversity at the institution on many levels. Students unanimously recommend mentoring as a needed component in the medical school. Mentoring should come specifically from race-concordant faculty, residents and administrative leadership that in other words "look like me." Additionally, implementing mandatory training for faculty, residents, students and administration on Unconscious Bias and microaggressions, in addition to other culturally relevant experiential learning opportunities for all is a start to changing the culture and climate of the medical school.

Improving the Incongruence Between SOM Messaging and Student Experience

Students described feelings of disappointment when they discovered that the culture and climate at the SOM was not what they expected in terms of acceptance and support of URiM students. These findings were explained in comments related to SOM endorsing the idea of diversity, but as URiM's described this as "realizing they [the SOM] were selling something that didn't really exist" (Kate). Specifics included incongruence in their classmates' attitudes: they weren't as open and as diverse as URiM students expected or believed that their classmates would be. Students indicate an ongoing need to advocate for and highlight gaps and holes in the curriculum and educational experiences that take away from some of the positive aspects of how supportive everyone [some faculty, peers and administration] has been. This creates extra burden on URiM students. However, students feel if they don't communicate about the gaps, the issues may not get addressed, or needed changes will move even slower than the current pace.

Students in the current research study also describe examples of discrimination from faculty interactions at the SOM. These experiences occur in clinical settings as well as at the academic institutional level. For example, a faculty member introduced a student to a group as being included in the project because they were a minority student rather than involvement due to the student's research ability. This was an explicit race-based comment. A different student describes a resident speaking to them very harshly. That student followed up with this comment: "I hadn't observed that kind of behavior directed at anyone else." This elicited feelings of alienation and marginalization in the student.

Classmates making negative comments about the requirements of clinical rotations at Denver Health, a community-based hospital serving underinsured under-represented populations, used terms such as "it is an undesirable rotation because of the patient population."

Examples also include differential treatment within class/cohort based on socioeconomic status. The SOM is considered by URiM students as being more of an elitist culture in part because of the perceived large number of students whose family members are physicians. In addition, social interactions are divided by subgroups, for example, microcultures of in-groups vs. outgroups. This also transfers over into social settings. URiM students are often excluded from certain events and/or classmates' perceptions by comments related to one's financial future based on the area of specialty of choice, for example, the family medicine.

Implications for Sense of Belonging

Support Systems, Academic and Non-Academic

Support systems, both academic and social, appear to have strong and disproportionate effects on URiM students. Overall, students in this research study described sources of their support system as being primarily from family and friends, and those experiences are self-initiated based on their needs and primarily come from outside the school environment. Students in my research study described their support systems as primarily obtained through self-initiated efforts. Those positive contributing factors are from family and other social support systems such as affinity groups. Students did report positive academic support systems within the SOM with certain faculty members and with the Office of Diversity and Inclusion. One additional office on the medical school campus was mentioned; the Office of Inclusion and Outreach, which provided space for URiM's to feel "like I belong."

Students list another priority area that directly relates to increasing their Sense of Belonging: mentorship from faculty and residents from URiM groups and other academic faculty. They describe a need for faculty within the medical school to reach out to them proactively to build relationships. This will demonstrate an understanding that URiM students are supported and increase students' Sense of Belonging. These relationships must include the

following components: how to navigate the medical school process (set priorities, increase networking), and a place and space to unpack any racial or microaggressions students experience in clinical or academic settings.

Relationship of General Systems Theory to the Ecosystems Theory

The findings from this research seemed to align best with ecosystems and general systems theories. General Systems Theory is a conceptual framework that provides a way to analyze parts of a system's components, and how inputs, outputs, and processes potentially influence the successes of the components within the system. Brinberg and McGrath (1985) suggest three facets of systems theory either for the whole or various levels of the system. First is system well-being, which identifies conditions and behaviors that threaten the positive development of the system. Second, system task performance is the effectiveness, conditions and barriers that hinder the system from carrying out its tasks or achieving its goals. Third, system cost is the expenditure of energy and resources (positive, negative experiences and access to support systems) in pursuit of task performance.

For this research study, general systems theory is the high level system which influences the use of the Ecosystems Approach. The Ecosystem Theory approach identifies the problems related to URiM student experiences and how those are influenced by various transactions within the system. This present research connected theory to findings related to the various aspects at the individual (including historical), interpersonal (family, community, and cultural) and institutional (environmental-structural) levels by demonstrating the multiple areas/systems which impact URiM student experiences. The Ecosystem framework "views individuals and environments as constantly interacting with and adapting to one another in a series of interconnected transactional networks" (Mattaini & Myers, 2002, p.16). This is clearly

demonstrated by how students describe their overall experiences, their effects (positive, negative and/or conflicted) and how these relate to the significance of Sense of Belonging.

Sheafor, et al. (2012) argued that vulnerable populations are especially susceptible to experiencing problems in some aspects of social functioning embedded in social structures. It is essential to identify biological, psychosocial, sociological, cultural and historical factors influencing the client's situations to develop interventions on what is needed and what should be done.

The URiM student experiences may not be linked as concentric circles as in the Ecosystems Theory because of the complexity of student interactions with the ecosystem. Students have described many factors that contribute to those experiences, which are linked to the effects of these experiences on student's psychosocial and emotional well-being and Sense of Belonging. I give below a working model of Sense of Belonging that references system-level interactions. I emphasize that these interactions are not necessarily embedded in a system of concentric interrelated subsystems. For example, a student's Sense of belonging (an individual level property) may not be determined by higher-level influences. Therefore, this is not a model of concentric circles.

Thus, mitigation efforts can begin for any one of these factors without requiring simultaneous efforts on all factors. Unlike the model of Hurtado and colleagues (Fig. 1, Hurtado et al., 2007), this model is nonlinear. It does not explain outcomes as dependent on a series of previous experiences.

A Solutions-Focused Model of Sense of Belonging for URiM Students: A Working Model

A goal of thematic analysis is to produce a model that explains the phenomenon addressed by the research questions (Braun and Clarke, 2006). This model is described as

solutions-focused because it breaks down the complexity of student experience and the multifactorial dynamics of contributors to Sense of Belonging. This allows interventions to focus on solutions rather than problems.

My model differs from many conventional graphical models consisting of components connected by arrows representing interactions between elements of the system. This working model takes into consideration new situations rather than a static system. This captures the dynamic, individualized changes in Sense of Belonging and their connectedness to the overall student experience. Therefore, the traditional would be a false representation and ignore the wide range of individual differences among the participants. Furthermore, a major finding of my research is that experience and belonging are dynamic, changing rapidly through time. Belonging evolves because the components of the model evolve: the student, their climate and culture, and their every situation changes as they are affecting the person in the environment. Thus, this model is still under construction and will be informed by future research.

Three factors emerged from this research that contribute to a working model of Sense of Belonging. These are discussed in depth in Chapters 4 and 5. They are, i., Sense of Belonging as a necessary component of well-being, ii. Sense of Belonging as multifactorial, complex and dynamic, and iii. Sense of Belonging as a factor potentially enhanced by the individual, the climate, the culture and/or the structural systems.

Sense of Belonging is a Necessary Component of Well-Being. Pilot observations which influenced this study and the findings from the present research suggest that when medical students lack a Sense of Belonging, the areas most diminished are motivation and an overall positive experience. This affects their psychosocial state-of-being and the sociocultural connection to the medical school. This explains how certain aspects of the overall medical school experience such as the psychological (including student's identity formation), sociological,

cultural and historical factors influence well-being. These factors align with Ecosystems Theory and social work interventions at both the micro and macro levels (Sheafor et al., 2012).

Sense of Belonging is Multifactorial, Complex and Dynamic. This research has shown that multiple factors can affect a Sense of Belonging, such as but not limited to culture and climate, racism, microaggressions, low diversity and access to social support systems. However, it has also shown that for some students, only one factor specific to the student need be present to provide the level of belonging essential to their well-being. Determining that factor is the obligation of the institution or entity with which the student is interacting. Another level of complexity is contributed by the effects of Sense of Belonging changing over time. The contributors to change-over-time were often associated with the adjustments and/or alterations in the student's ecosystem. For example, students receive information from me about available resources such as tutoring or accessing the learning specialists to obtain support for academic progress, proactively and not retrospectively (before experiencing any academic failures). This intervention changed a student's Sense of Belonging from negative to positive.

Sense of Belonging Can Be Enhanced. An unanticipated result was that Sense of Belonging could be enhanced when students themselves took the initiative to repair it by, for example, forming a social group or excelling academically. In the latter case, two students realized they belonged at the SOM when they learned that they were capable of a level of performance commensurate with that of their majority colleagues. A change of climate could also provide a Sense of Belonging. Once two students finished their course work and found that they excelled in clinical work and in contact with patients, they knew they could be successful doctors and thus were a part of the institution. An example of a system level change occurred in one case where an affinity group provided by the Office of Diversity and Inclusion enhanced the

students' perception of their support systems. This support emerged from the student's associations at multiple levels with race concordance and with cultural and historical connections formed in the group.

Taken together, these three findings provide a Call to Action for medical education and social work to further develop a model for Sense of Belonging.

Future Research

These results suggest many areas for future research, described first in each relevant section above with the accompanying results and literature review. Here, I review these and include specific questions and possible avenues for the research. Results of all future research should ultimately be used to make the changes necessary to improve student experiences.

General Results

If the study is replicated with larger sample sizes and at other medical schools, would the same results be obtained? Would similar results be obtained at schools of medicine at Historically Black Colleges (HBC's)? Do students other than URiM's have similar experiences? Do URiM students from BA/MD pipeline programs have experiences in medical school similar to other URiM students?

Social Support

Are the key sources of social support for URiM students inside or outside the SOM or both? Because social support of all kinds seems so critical in this and other studies, this factor should be studied in more detail in future work, particularly with respect to how schools of medicine can enhance this factor. In a few cases, family was the most important source of support, and this result should also be explored with the goal of determining if this too can be enhanced.

Ambivalence

What are the key factors leading to ambivalence? Although the sample sizes are small, it appears that students become more positive in their overall feeling about their experience through time. If so, what factors bring about that change?

Diversity

Would increased racial, ethnic and SES diversity improve the culture and climate of medical schools for URiM students with no additional policy or program changes? Several students cite increasing diversity as key to improvements in many aspects of culture and climate but this is not a foregone conclusion. A comprehensive cross-institutional review might determine if this is generally true and why or why not. This in turn would inform future research.

Sense of Belonging

The following questions would assist in untangling the complexities of Sense of Belonging uncovered by this research. What is the time course of the reported improvements in Sense of Belonging? How often does it improve and why? Why does a strong feeling of belonging associated with effort and ability not extend to a general Sense of Belonging? If the result, that a student feels a Sense of Belonging only after success when working with patients, is widespread, would it be possible to give students these experiences earlier in their education? Would increasing Sense of Belonging positively affect student general well being and academic performance?

Chapter 5 Summary

This chapter comprises the following sections: an overview of the goals, significance and results of the research; the four themes discussed as they relate to the literature; the research questions, the four themes and the contributions of this research; implications for programming

and student support services; the Ecosystems Theory approach revisited; a solutions-focused model of Sense of Belonging for URiM students: and possibilities for future research.

This chapter reflects my underlying motivation for undertaking this research: to take a social work solution-focused approach to the critical problem of URiM student's disaffection with their medical school experience. Improving students' experience in medical school will result in increased parity between majority and URiM health professionals. An increase in URiM's in the health professions will result in increased health outcomes for populations currently experiencing health disparities across all specialties in medicine.

By taking a social work solution-focused approach, this chapter has implications for programming and other intervention strategies that will improve URiM student experience. Additionally, when combined with the student recommendations in the Appendix, they provide a roadmap for improving overall experiences at the CU SOM for all students.

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GRADUATE SCHOOL
COLORADO STATE UNIVERSITY

APPENDIX A

Recruitment Email Script Protocol (19-8674H Buchan)

Dear CU Medical Student,

Hello, my name is Regina Richards and I am a researcher from Colorado State University in the School of Social Work. The title of the project is *Underrepresented Minority Medical (URiM) Students: A Qualitative Study of Factors Affecting Their Experience*. We are conducting a research study to capture the experiences of underrepresented minority (URiM) students at CU School of Medicine (CU SOM) as part of the long-term goal of improving medical student experiences and the success of all students. The Principal Investigator is Victoria Buchan, PhD in the School of Social Work and the Co-Principal Investigator is Regina Richards. This research in being done as part of the requirements for a doctoral dissertation at Colorado State University in the School of Social Work.

We would like you to answer a few questions about various aspects of your life as a medical student. Participation will take approximately one hour. Your participation is this research is voluntary. If you decide to participate in the study, you may withdraw your consent and stop participation at any time without penalty.

We will be collecting your name for the purpose of recruitment into this study. Should you agree to participate after receiving all the information, you will be asked to create a pseudonym name that de-identifies any personal information. Interviews are voluntary and information about how the findings will be provided to interviewees during the verbal consent script. When the study is completed, the co-investigator will contact the interviewees via email to inquire if they wish to receive a copy of the findings and to provide any changes if any, about the dissemination of the information. This study is confined to URiM's at CU SOM. Therefore, any race and ethnicity data obtained will be from existing data at CU SOM Office of Student Life or Office of Diversity and Inclusion. When we report and share the data, we will combine the data from all participants. Following verbal consent, participants will be invited to state their gender, decade of age, and ethnic identity, but responses will not be required (these participant attributes have possible interpretive value, since experience may be affected by them.)

There are no known risks or direct benefits to you, but we hope to gain more knowledge on the overall experiences, positive or negative, of URiM students. The research will be shared by the publication of a Doctoral dissertation, in peer-reviewed articles in scholarly publications and could include presentations at workshops or seminars for the educational purposes of developing programs and support services both in medical school and higher education programs.

If you like to participate or have questions, please contact Regina.Richards@ucdenver.edu or 303-229-8281. Feel free to ask questions at any time.
If you have questions about your rights as a research study participant, you can call the Institutional Review Board (IRB). The IRB is independent from the research team. You can contact the CSU IRB at: RICRO_IRB@mail.colostate.edu; 970-491-1553 if you have concerns or complaints that you do not want to talk to the researcher about, or you may email the dissertation advisor, Victoria.Buchan@colostate.edu.
Sincerely,

Victoria Buchan, PhD
Professor and Director
School of Social Work
Colorado State University

Regina Richards
PhD Candidate
School of Social Work
Colorado State University

APPENDIX B

Verbal Recruitment/Consent Script with Identifiers Collected (Protocol 19-8674H)

In conversational style…

Hello, my name is Regina Richards and I am a researcher from Colorado State University in the School of Social Work. We are conducting a research study on *Underrepresented Minority Medical Students: A Qualitative Study of Factors Affecting Their Experience*. I'm conducting this research as part of the requirements for a PhD in the School of Social Work at Colorado State University. The purpose of the study is to capture the experiences of URiM students at CU School of Medicine (CU SOM) as part of the long-term goal of improving the medical student experience and the success of all students.

We would like you to answer a few questions about various aspects of your life as a medical student. Participation will take approximately one hour. Your participation is this research is voluntary. If you decide to participate in the study, you may withdraw your consent and stop participation at any time without penalty.

We will be collecting your name for the purpose of recruitment into this study. Should you agree to participate after receiving all the information via this verbal consent, you will be asked to create a pseudonym name that de-identifies any personal information. This study is confined to URiM's at CU SOM. Therefore, any race and ethnicity data obtained will be from existing data at CU SOM Office of Student Life or Office of Diversity and Inclusion. When we report and share the data, we will combine the data from all participants. Following verbal consent, participants will be invited to state their gender, decade of age, and ethnic identity, but responses will not be required (these participant attributes have possible interpretive value, since experience may be affected by them.)

There are no known risks or direct benefits to you, but we hope to gain more knowledge on the overall experiences, positive or negative, of URiM students. The research will be shared by the publication of a Doctoral dissertation, in peer-reviewed articles in scholarly publications and potentially at workshops or seminars for the educational purposes of developing programs and support services both in medical school and higher education programs.

Would you like to participate in this study, and have our conversation recorded?

If yes: Proceed

If no, Thank you for your time.

If you have questions, you can contact me at Regina.Richards@ucdenver.edu or 303-229-8281. Feel free to ask questions at any time.

If you have questions about your rights as a research study participant, you can call the Institutional Review Board (IRB). The IRB is independent from the research team. You can

contact the CSU IRB at: RICRO_IRB@mail.colostate.edu; 970-491-1553 if you have concerns or complaints that you do not want to talk to the researcher about, or you may email the dissertation advisor, Victoria.Buchan@colostate.edu.

If you want to receive a copy of the report of the study when it is complete, I'll contact you via email and you can indicate you'd like a copy. I'll then follow up by sending you the report when it is available.

APPENDIX C

Interview Protocol

QUESTION 1: What has your experience been like in the med school?

Goals of the question:

- To obtain the student's psycho-social and academic experiences at UC SOM
- To determine what factors have shaped their experiences
- To determine if the student feels a sense of belonging at the medical school

FOLLOW UP: How do you feel about the culture at the med school?

FOLLOW UP: How do you feel about the climate at the med school?

FOLLOW UP: How have your interactions with (peers, faculty, staff) been at the med school?

FOLLOW UP: Do you feel you have (personal, academic) support networks here?

FOLLOW UP: Have you accessed any academic or other support here?

FOLLOW UP: Do you feel you belong here at the SOM?

FOLLOW UP: If no, probe: Why not? What might increase your sense of belonging?

If yes: what contributes to that?

QUESTION 2: What has been your experience outside the medical school?

Goals of the question: To determine contributors and/or barriers to student well-being.

FOLLOW UP: Do you feel you have support and/or barriers outside the med school?

FOLLOW UP: Have you been able to explore the larger community outside the medical school?

FOLLOW UP: What kinds of things (groups, clubs, activities, service, in the community, social, physical well-being) do you do outside of your academic work here?

FOLLOW UP: What kinds of things do you wish you could do more of?

QUESTION 3: What was your experience like during your undergraduate years, in and out of school?

Goals of the question:

To determine contributors, academic and non-academic, to student well-being prior to medical school.

To determine if any form of these can be replicated to the medical school experience.

QUESTION 4: What if anything would you like to change about your life now, both in and out of the medical school?

FOLLOW UP: Is there anything in particular that would improve your sense of belonging?

QUESTION 5: What recommendations, if any, do you have about ways the CU SOM could improve the medical school experience for URiM students specifically and for all students, generally?

FOLLOW UP: For example, social and/or emotional support, learning environment, financial aid and/or scholarships, early alert for academic support, sense of belonging, mentoring, understanding how to navigate the medical education environment, an overview of the culture of medicine, community service-learning opportunities.

APPENDIX D

Codes for Protocol 19-8674H

QUESTION 1: What has your experience been like in the med school?

CATEGORY: EXPERIENCES

CODE: Experience is positive, negative or conflicted

FOLLOW UP, CULTURE: How do you feel about the culture at the med school?
CATEGORY: CULTURE

CODE: Feelings about culture: positive, negative or conflicted/a facade

CODE: Incongruence between system actions and system self-perception

CATEGORY: RACISM CODE: Racism: explicit: effects on experience

CODE: Racism: implicit, microaggressions: effects on experience

FOLLOW UP, CLIMATE: How do you feel about the climate at the med school?
CATEGORY: CLIMATE CODE: Climate: Intrinsic Motivation effects on and/or of climate

CODE: Shared values: Yes, no, both or conflicted; associated emotion(s)

FOLLOW UP, INTERACTIONS: How have your interactions with (peers, faculty, staff) been at the med school?

CATEGORY: INTERACTIONS

CODE: Experience of Interactions with peers/faculty/staff: pos, neg, conflicted and WHY

CODE: Creating their **own friend network** critical effect on experience yes/no

CODE: Change through time in Interactions with peers/faculty/staff: yes/no/WHY

FOLLOW UP, SUPPORT: Do you feel you have (personal, academic) support networks here? Have you accessed any academic or other support here?

CATEGORY: SUPPORT

CODE: Social support: yes/no/source/self-initiated

CODE: Academic support: yes/no/source

CATEGORY: SYSTEMS

CODE: Incongruence between system policies/actions and self-perception

CODE: Student is (isn't) aware of the availability of proactive academic support.

CODE: Student does **not advocate** for themselves when in need Yes, No, Why

CODE: Resources such as learning specialist, tutoring, disability services are helpful (or not) when accessed by referral or self-advocacy student.

CODE: System failure: faculty/staff don't reach out until failure

CODE: Student is (isn't) aware of the availability of affinity groups.
CODE: Metrics**/evaluation/promotion** system has negative (or positive) effects.
CODE: Positive aspect of institution

FOLLOW UP, SENSE OF BELONGING: Do you feel you belong here?

CODE: Sense of belonging: yes/no/conflicted and WHY?

CATEGORY: Factors of Sense of Belonging (positive, negative, conflicted, self-initiated)

CODE: Sense of belonging: Student Well-Being, Mental Health

CODE: Sense of belonging factors: climate factors: diversity

C**ODE:** Sense of belonging: importance of shared **values**
CODE: Sense of belonging factors: **intellectual capacity**
CODE: Sense of belonging: importance of **family members as physicians**
CODE: Sense of belonging factors: **social support**
CODE: Sense of belonging: **changes** over time and why
CODE: Sense of belonging: **their ideas about factors** to increase their sense of belonging

QUESTION 2: What has been your experience outside the medical school?

FOLLOW UP, SUPPORT: Do you feel you have support and/or barriers outside the med school?

CODE: Support/barriers outside SOM: yes/no/source

FOLLOW UP, EXPLORE: Have you been able to explore the larger community outside the medical school?
CATEGORY: COMMUNITY
CODE: Explore **community outside SOM**: yes/no/source and effect on student experience

FOLLOW UP, WHAT YOU DO: What kinds of things (groups, clubs, activities, service, in the community, social, physical well-being) do you do outside of your academic work here?
CODE: as above

FOLLOW UP, WISH MORE OF: What kinds of things do you wish you could do more of?

CATEGORY: STUDENT WELL-BEING CODE: Kinds of things do you wish you could do more of
CODE: Stress from various causes: Yes + cause; No
CODE: Self-Initiated sources of well-being YES, NO, WHICH

QUESTION 3: What was your experience like during your undergraduate years, in and out of school?

CATEGORY: UNDERGRADUATE EXPERIENCES

CODE: Effects of Undergraduate experiences on SOM experience: Pos,neg, etc

QUESTION 4: What if anything would you like to change about your life now, both in and out of the medical school?

CATEGORY: PERSONAL DESIRED CHANGES, IN & OUT OF SOM CODE: Desired changes at personal level

QUESTION 5: What recommendations, if any, do you have about ways the CU SOM could improve the medical school experience for URiM students specifically and for all students, generally?

CODE: RECOMMENDATIONS

APPENDIX E

Recommendations by Students

Research Question 3: What recommendations, if any, do you have about ways the CU SOM could improve the medical school experience for URiM students specifically and for all students, generally?

Ten student participants in this study have described and recommended factors that contribute to positive student experiences. The goals of the study were to use open-ended, semi-structured in-depth interviews to obtain factors that affect URiM student experience. In addition to identified factors, students provided recommendations that can be used as background information by the SOM to strengthen and perhaps even redefine existing programs and develop new programming and social support services that potentially increases positive student experiences for all students.

Students enthusiastically gave recommendations which were clustered into factors for improvements. Those factors are social support, mentoring, increased diversity, longitudinal curriculum and culture and climate changes. Within these factors, I give the ecosystem level for each recommendation.

Factor: Social Support

Students recommend increased availability and awareness of social support systems and services. This could allow students to proactively access these services to build relationships before any advising by the promotions committee process. “I don’t feel supported by the institution as I would like to be. And I think more in the sense that I’m not sure what resources are available, how the school can help.” (Tom)

> I think it's okay to really bombard us with "are you okay?" Have a class session with something like, "How's your day going today, do you need to talk to someone, this person will be available to talk today after class." I don't know who would take that on because I think it would be a lot for whomever, if it was the faculty or person taking that on, but I do think it would be helpful. (Ben)

Factor: Mentoring

Students recommend race-concordant mentors who can help them understand and navigate the medical school process and reduce feelings of isolation and alienation.

"I have friends that struggle academically, and the Office of Diversity and Inclusion could help them with things like that." (Tom)

> Let's see, mentorship. When I mean mentorship, I mean people who look like you, and I would have loved, and I did and I was lucky like to have, have mentors that I did. But yeah, I would say that would be a very large piece…
>
> An advocate for yourself, that goes along with the same lines of that. That was pretty large. Navigating healthcare specifically. (Roger).

When I asked the follow up question "is there anything else that would increase your sense of belonging here at CU SOM" social or emotional support? Anything about the learning environment? Financial aid and scholarships? Roger responded: "Yeah all of the above."

Factor: Curriculum

Students identified the need for race-based longitudinal curriculum to prepare all students to be more culturally aware and responsive to URM patients and also within communities where diverse populations live and access healthcare systems.

Factor: Institutional Level

Student recommendations with respect to the curriculum unanimously indicate that changes must be implemented vertically.

> "I thought they (my classmates) would be educated and aware, but they're not and I think this creates an environment that is not friendly and welcoming. Education makes them aware of issues and problems." (Tom)
>
> "Mandatory curriculum changes should be made to include philosophy and religion of different backgrounds. Mandatory curricular change to include the subjects of microaggressions, systemic racism and inequities that exist in our communities." (Ted)
>
> "In our hospitals what we frequently experience is serving minority populations. I don't think allocating one day at the beginning of medical school is appropriate to address the reality of medicine." (Kate)
>
> And I feel if there is something that's incorporated longitudinally to address and re-address and re-address these issues that may come up, I think it will help contribute to more well-rounded students because I think everyone can take a test at this point and pick a treatment out of multiple choice. Scenario based and videotaped so students can watch how they address some of these things in the spur of the moment before we go out to serve these populations that we unfortunately some of us are a part of them so we kind of understand, but some people do need training and that's ok. (Kate)

> I think you learn from patients maybe during patient care in medicine. I think you learn about all of that in the context of clinical work, especially being at Denver Health. But I think it would be even better before we get there to just have some background of where our patients are coming from and what barriers they've faced and just what happened to society where we have those marginalized groups. Because I don't know if everybody realizes that or understands that. So just maybe some lectures on barriers to care and not just, yes, finances and all that but just laws. (Disproportionate penalties based on race). (Beth)

Factors: Increase Diversity

Students unanimously recommend increasing diversity at all levels within the CU SOM system and including pipelines, students, faculty, residents and staff. This also addresses feelings of students not seen as being valued as an asset to the team or the institution. "I think our school's kind of trailing behind...And if they could make a more conscious effort to make the classroom look like the population that would be ideal." (Kate) "More translational scientists when you're trying to get into competitive fields or I don't know any other fields, you need that stuff." (Beth)

> I would also say that there needs to be mandatory training or other requirements that need to be met on specifics of diversity. I'm a firm believer in affirmative action and if we continue to fail to achieve representation of faculty and students, there has to be incentives. You need to create the minimum number of what you're trying to achieve and make scholarships and bonuses and positions for each of those either faculty or students. So you can recruit them to be part of this community. Those are starts. (Ted)

There'll be people who come up, who are in middle school or high school right now, who are seeing students as myself going through this and they're like. 'Well that's real now, it's doable' and I think that will be helpful for them to see. But I think a school's able to realize that that's not the only way to weed students out, that the way people feel at every point in training will improve. Not just patient care, everything would change, because now the people who are in it understand the patients, they're also in a better place, maybe they have better interactions in their career, then they have time to give back and other students are seeing it, and they would just keep circling. I just feel like it would. How do you make it fair, right, how do you actually implement these changes, I think that's the problem everyone has at this level. (Ben)

I think that being a student like this in medicine, you're often asked, so there will be many settings where you are the only person of color, of that gender, of that sexual orientation, of whatever in that room. You're in an academic setting, you're in a professional setting. The team will be predominantly, whatever the binary, whatever the standard is of that. So predominantly say a white affluent educated from a family coming from physicians. And you might be the only person of color, but the thing is that the patient groups you're dealing with at any academic center, outside of here or whatever might be closer to what you actually are.

I want to be valued as someone who is intellectually and who is medically speaking competent, who can work through a differential, who can diagnose treat and respond, and that can be iffy because sometimes you get pulled into a thing where you're being dialed as, say, a translator, and not a medical student. I think

things that I'd try to do to combat that is say, you know, if someone says "Hey, can you translate for us?" Say, for example, that this is the scenario. Say that you're a team caring for a patient, and there's another patient on your team that's, that you're not taking care of, right? Someone's like, "Hey can you come translate for me?" Well that's actually a little bit different now, because it's not necessarily the patient that you were there, it's not your patient now. Now you're providing a service. (Ben)

I think that the number of students of color, specifically black students, I think is underrepresented as a big umbrella, but specifically black, African American students have to be better, because I think that's when we can measure, really measure that the school is really invested in increasing the number of students of color to become doctors. I think having a community of underrepresented black people is a sense of belonging as well as a sense of community that maybe those students had when they went to undergrad. That improves the sense of belongingness, the sense of pride, feeling like yeah, I have people that can relate, that I can truly open up and be myself with. (Viv)

How to care for underrepresented patients? How do we care for patients that don't speak our language? How do we communicate with those patients? What does race and ethnicity have to do with health? We don't have a class for that. (Viv)

If we could find a way to continue to elevate the voices of underrepresented students, making sure our peers are aware of our experience, and the journey's that we've traveled to be where we are, because I feel like sometimes people don't really see that. (Jack)

Factor: Climate

Recommendations were made for more visible places where like-minded students can gather and build community including support services at all levels within the academic environment.

> When we think of extended community out here, we need to find a way to incorporate and be more inclusive to those people, make them feel like they can come here. I know that might come at even a bigger policy level. So, thinking of the State of Colorado, if we had a Medicare for all single-payer system or if we had a system that didn't cripple families and put them into bankruptcy, we could have people more willing to access care. (Ted)
>
> There needs to be more spaces on this campus to include people whether that be places where meals are created, urban gardens. Which I know there is one here, but it's not well advertised. It's my understanding they brought this campus to Aurora to serve a great need, but yet we're still not serving that need. (Ted)
>
> I think selecting medical students that actually have missions, values that align with the School of Medicine is, I think huge because then that sets the climate and really sets the tone for the rest of the student body. I think the other thing is that we all understand … and all of these things matter, but at the same time, other characteristics or humanistic, or approaches are not as celebrated and they're not held to the same standards, so you feel like ok, I get it. People just appreciate basic science instead of the other things, and so there's no course or curriculum that's dedicated within the first two years if you just have an hour lecture,

nobody's going to care. The amount of time you dedicate to certain things is going to correlated to this goal committed. (Viv)

I would say one thing is really paying close attention to the people that we're meeting through this school and scrutinizing students in a way that making sure what they say on their applications is really who they are and it's not just something that they're saying just to get in. I do think things like first course was amazing, I wish that was more longitudinal. I think it would be super helpful to expand the Office of Diversity, making sure that the Office of Diversity has everything and absolutely full support from everyone in terms of bigger space. I think for me, that would be super cool, and I kind of use the Office of Inclusion and outreach it's just somewhere I can go and just hang out, somewhere I feel… I feel like I feel safe all through the campus, but somewhere I feel like I belong. (Jack)