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Table of Contents

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Letter From the Editors

Scientific inquiry increasingly engages with questions that span both microlevel and macrolevel domains, pushing the boundaries of established disciplines and demanding rigorous, reflexive analysis. As emerging scholars pose questions that interrogate the structural, social, and ethical dimensions of contemporary challenges, scientific research remains a critical tool for understanding the forces that influence health and well-being. *Georgetown Scientific Research Journal* is committed to amplifying student scholarship while promoting diversity in scientific research. In publishing the Fall 2025 issue, we are proud to highlight work that exemplifies this commitment to exploring structures and systems and advancing meaningful change within them.

The two manuscripts featured in this issue examine pressing challenges related to structural and social determinants of health, with particular attention to factors that shape patient care, trust, access, and treatment. One article analyzes how medical education falls short of cultivating trustworthiness in healthcare professionals and institutions and proposes a new framework of medical training that shifts to addressing provider-level interventions. The second manuscript investigates the beliefs and attitudes that influence support for medication-assisted treatment in rural communities, contributing valuable insight into how cultural perceptions and social context affect the adoption of evidence-based interventions. Though distinct in scope, both studies highlight the necessity of examining healthcare not only as a clinical endeavor, but as a social and institutional one. They highlight the importance of critically evaluating prevailing attitudes, behaviors, and institutional norms to inspire structural change and improve healthcare delivery and outcomes.

Taken together, the articles in this issue invite careful consideration of how healthcare systems earn legitimacy, trust, and effectiveness in the communities they serve. We commend and congratulate the authors for their readiness to engage with these complex questions and for advancing clear directions for future inquiry and intervention. We hope this issue encourages readers to engage thoughtfully with these dynamics, looking both internally at their own attitudes or assumptions and externally at current institutional practices.

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Medical Education and Training Reimagined: Moving Structural Racism and Trustworthiness from the Margins to the Center

Shreya Kalra, Derek M. Griffith, PhD

Medical Education and Training Reimagined: Moving Structural Racism and Trustworthiness from the Margins to the Center

Shreya Kalra[1], Derek M. Griffith, PhD[2,3]

[1]Department of Health Management and Policy, School of Health, Georgetown University, Washington, D.C., U.S.A.
[2]Department of Family and Community Health, School of Nursing, University of Pennsylvania, Philadelphia, P.A., U.S.A .
[3]Department of Medical Ethics and Health Policy, Perelman School of Medicine, University of Pennsylvania, Philadelphia, P.A., U.S.A.

Email: skk70@georgetown.edu
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Abstract

Historically, medical education has not adequately addressed racial and ethnic inequities in healthcare or prepared physicians to earn patient trust, especially among marginalized communities. While some curricula cover health inequities and cultural competency, they focus more on encouraging patient trust than on teaching physicians how to demonstrate trustworthiness. By distinguishing between mistrust, distrust, and trust, we highlight a crucial gap in medical training: current training promotes patient trust without equipping physicians with the skills to earn it. The focus must shift from encouraging patients to trust the healthcare system to directly training providers in behaviors and systemic changes that demonstrate trustworthiness in order to gain trust. We propose a reorientation of medical education: one that emphasizes promoting trustworthiness and directly addresses the systemic and provider-level factors that have contributed to the erosion of patient confidence in medicine and their medical providers.

Keywords: patient trust, healthcare inequities, health equity, medical curricula

1. Introduction

There is a growing recognition of the need for more well-rounded healthcare providers. In 2015, the Association of American Medical Colleges (AAMC) added psychology and sociology content for the first time to the Medical College Admissions Test (MCAT) to enhance future physicians' abilities to consider the patient as a whole person in the delivery of care[1,2] and understand how behavior affects health in an effort to better "serve a diversified patient population".[1,3] The addition reflects the AAMC's recognition of the importance of understanding the patient holistically, appreciating the wide range of factors that influence one's healthcare and wellbeing.[1]

Similarly, Metzl and colleagues have led efforts in building medical education around the notion of structural competency,[4,5] developing a framework for more holistically understanding how social and political factors shape healthcare provision and patients' health. The medical curriculum rooted in structural competency consists of training in five core competencies: 1) recognizing the structures that shape clinical interactions; 2) developing an extra-clinical language of structure; 3) rearticulating "cultural" formulations in structural terms; 4) observing and imagining structural interventions; and 5) developing structural humility.[4] These skills are especially valuable in preparing future physicians to identify and connect patients with relevant social and support services.

Additionally, many medical schools are now integrating changes in their curricula to ensure a more holistic training of future providers, including units on social drivers of health.[6] However, surveys of medical students reveal that simply teaching these concepts is insufficient to prepare students to actually address health inequities. Here, health inequities are defined as differences in health that are unnecessary and avoidable and are considered unfair and unjust.[7,8]

In a notable attempt to improve medical education, Boston Medical Center delivered seven Health Equity Rounds (HER) from June 2016 to June 2018. This longitudinal curriculum utilized case-based discussions and evidence-based exercises to teach providers to recognize the historical context and present-day role of structural racism in medicine. While Boston Medical Center's training had a positive impact, with 88% of survey respondents indicating that HER promoted personal reflection on implicit bias, it primarily focused on educating providers about inequities rather than equipping them to actively demonstrate trustworthiness.[9] Ultimately, these improvements to medical education neglect to directly train physicians to actively address and confront the context that has hindered patient-provider relationships, particularly among racially-minoritized populations.

Before informed consent and other standard ethical practices today, there were numerous, well-documented instances of unethical research conducted on racial and ethnic minoritized populations and other historically marginalized groups.[10–13] Furthermore, increasing numbers of financial relationships between university scientists and industry have cast doubt on the objectivity of individual researchers, their institutions, and the larger system of academic research, fueling skepticism about research trustworthiness.[14,15] In an effort to set better standards for scientific integrity and ensure ethical human research, Congress passed the National Research Act and established the Office for Human Research Protections in 1974.[16] Though unethical practices still occur, there is now mandated implementation of regular training for clinical service providers and biomedical researchers.[17] While it is necessary for the physician workforce to understand this tragic history, there remains a need to equip current and future physicians with the tools to repair the damage caused to patient-provider relationships.

Although extensive research has examined patient trust, mistrust, and distrust, as well as structural racism and inequities in healthcare, this scholarship has not been translated into a coherent framework for medical education. Existing curricula do not explicitly identify trustworthiness as a teachable, assessable professional competency. As a result, medical education has not adequately prepared physicians to earn patient trust. This manuscript makes three key contributions to address this gap.

First, we synthesize existing literature to clarify how trustworthiness differs conceptually from trust, mistrust, and distrust. Trustworthiness determines trust and, therefore, must precede efforts to address patients' lack of confidence in the quality of care they receive. Understanding how trustworthiness influences these dynamics is essential for strengthening patient-provider relationships and preparing current and future healthcare providers to navigate these evolving challenges.

Second, we argue that trustworthiness should be understood as a set of teachable clinical competencies. By drawing on empirical evidence, we identify specific behaviors—transparent communication, empathic engagement, and reflective practice—that shape patient perceptions of provider trustworthiness. This approach reframes trustworthiness as a curriculum-worthy domain, grounded in documented mechanisms.

Third, we translate these insights into novel, concrete recommendations for medical school education. The curricular interventions we propose represent educational strategies that do not currently exist in medical training, but result directly from the evidence base. In doing so, this manuscript provides one of the first attempts to operationalize trustworthiness in a way that is both conceptually rigorous and practically actionable.

By articulating trustworthiness as a core competency and offering a framework for how it can be cultivated across medical training, this manuscript extends the literature beyond documenting the consequences of mistrust and distrust toward specifying what providers and institutions can do to meaningfully address it. The contribution lies not only in naming trustworthiness as an educational priority but by providing a structured pathway for implementing it—a shift that has the potential to transform the preparation of future physicians and strengthen relationships with communities historically harmed by medicine.

2. Background

In 2003, the Institute of Medicine, now the National Academies of Sciences, Engineering, and Medicine, garnered national attention when it published *Unequal Treatment: Confronting Racial and Ethnic Disparities in Healthcare*.[18] The report reviewed over 100 studies documenting pervasive racial and ethnic disparities in the quality of healthcare, even when patients of different racial and ethnic groups had the same insurance status, income, and other access-related factors.[18] The extent of racial and ethnic inequities in healthcare was explained by factors rooted in systemic and structural racism. The report confirmed what Black Americans and other medically underserved populations had argued for decades: the quality of healthcare they received was poorer than that of other racial and ethnic groups.[18]

Numerous programs and policies were instituted following this report. Twenty years later, the National Academies of Sciences, Engineering, and Medicine appointed an ad-hoc committee to review the progress made since the initial report. Their goal was to assess and identify key drivers of racial and ethnic disparities in U.S. healthcare, evaluate past interventions, and propose scalable strategies to address gaps in the evidence base and promote health equity.[19] In 2024, this committee published *Unequal Treatment Revisited: The Current State of Racial and Ethnic Disparities in Healthcare*, reporting that most efforts to reduce healthcare inequities have been ineffective.[19] Additionally, they demonstrated that positive changes from diversity and implicit bias training tend to be small and short-term.[19] Given that many physicians denied that bias and racism existed in medicine and the care that they provide, greater efforts to promote accountability for inequitable healthcare services are needed.

Given this context and the many well-documented instances of unethical research conducted on racially and ethnically minoritized populations,[10–15] it is essential to reframe notions of trust to recognize that patients are right to approach healthcare with some level of skepticism. Despite this, studies on patient trust often assume that patients have equal access to care, are likely to receive the same quality of care, and that their fears of inequitable care are unfounded or irrelevant.[11,20] Patient skepticism, suspicion, and distrust may be appropriate, reasonable, and highly adaptive approaches to healthcare institutions, particularly in the context of the history of racism and discrimination in medicine and healthcare.[20–22]

Many of the strategies and solutions proposed by the National Academies were changes to healthcare systems and societal structures beyond the control of individual healthcare providers. While these policy and structural changes in society and healthcare take time to become part of education, training, and practice, emphasizing trustworthiness is immediately within the control and purview of current and future providers.

This paper highlights a fundamental gap in medical education: existing curricula touch on concepts related to trustworthiness (e.g., cultural competence, implicit bias training), but fail to name and develop it as a distinct competency.[22] We argue for an explicit and intentional focus on trustworthiness in medical education, shifting attention from patient-centered interventions to provider accountability in mitigating distrust and mistrust. We propose this because it provides a tool for physicians to understand their role in operating within this history and context.

We begin by defining and describing trust, mistrust, and distrust because they have been the primary focus of research to date (Table 1). These areas are important, but the emphasis is on changing characteristics of patients, not providers. We conclude by focusing on trustworthiness and propose integrating it into continuing medical education to address inequities in the quality of healthcare.

2.1. Trust

Trust is the defining characteristic that provides meaning and depth to patient-provider relationships.[23] Patient trust in their provider can be described as the patient's willingness to be vulnerable, honest, and transparent about their behaviors, symptoms, life circumstances, and other factors that may influence their health and well-being.[24]

Patient trust is believed to be an essential ingredient in effective medical care,[23] particularly in patient health and healthcare decisions.[24-26] According to Greene, over two decades of research show how patients' trust in providers promotes greater continuity of care, follow-through with clinicians' recommendations, patient satisfaction, and self-rated health.[27] While there is no universally accepted definition, patient trust implies that the healthcare provider or institution will act in the patient's best interest.[24-28] While a considerable amount of research documents the importance of trust, it has been difficult for physicians to earn and maintain the trust of historically marginalized people.

2.2 Distrust

Distrust is a transitive verb, meaning that it requires a direct object to clarify what or whom is

Table 1. Distinctions between trust, distrust, and mistrust

Construct & Definition	Root Cause
Trust: A patient's willingness to be vulnerable and transparent with their physician, based on patients' perceived belief in their provider's motivation and ability to care for them, given both direct and historical experiences and perspectives.	A patient's attitudes and beliefs are based on their assessment of a provider's competence. It is often assumed that the patient's perspective is based solely on the physician's characteristics, but this assumption fails to account for the historical, social, and political context of the patient-provider interaction.
Distrust: A lack of trust specific to an object or person.	A patient's skepticism or suspicion that a specific provider, health system, or other specific unit may not be providing them optimal quality healthcare. They base this assessment on personal or vicarious experiences.
Mistrust: A general lack of trust that is not based on a particular object.	A patient's general skepticism or suspicion that they may not be receiving optimal healthcare because the patient knows that there is a long history of unethical healthcare research and practice.

the object of the sentiment. This indicates a patient does not trust a provider, institution, profession, or something very explicit. Distrust, therefore, may be based on personal or collective experience or reliable information, and it can be directly instigated by the physician or institution itself. It could also be because a trusted friend, family member, or loved one reports a bad experience with a given provider, institution, or the healthcare system more generally. One of the cornerstones of distrust is a heightened skepticism regarding the quality of the treatment received.

The term also includes patients' efforts to contextualize their experiences, facts, and beliefs in historical, social, and political contexts.[23] In this case, distrust is the idea that the patient actively questions or doubts the motives of the specific provider, researcher, organization, or institution. Consequently, distrust affects patients' willingness to be vulnerable with or to depend on the provider or healthcare entity.[29] Historically and presently, marginalized communities may expect or have previously experienced racism, discrimination, and unethical healthcare that can infringe on patients' confidence in the quality of healthcare they are receiving.[10, 30–33]

To address distrust, it is critical to recognize that the suspicions, fears, and roots of distrust are logical responses to a history of inequity. Skepticism regarding the quality of the healthcare patients receive can be rooted in being well-informed about the history of racism, homophobia, and other structural inequities within healthcare.[34] For providers to successfully build trusting relationships with their patients, providers should explore and address why the suspicion that underlies distrust exists with an individual physician, practice, organization, or system, and match the measurement or intervention strategy to that level. Interventions aimed at addressing distrust must equip providers with an understanding of the local history and the relationship between healthcare institutions and the communities they serve.[34-39]

2.3. Mistrust

Whereas distrust is specific to an object or person, mistrust describes a more general lack of trust in medicine, not based on a particular object.[23] The patient is not skeptical of something or someone specific, rather more generally apprehensive towards healthcare as a whole. Mistrust often stems from the patient's knowledge of the long history of unethical healthcare research and practice.[34] This feeling may originate from distinct historical experiences linked to group identity (e.g., the U.S. Public Health Service Study of Untreated Syphilis in the Negro Male, also known as the "Tuskegee Syphilis Study"), vicarious experiences, or oral histories.[23,34] Addressing mistrust requires interventions that train providers to acknowledge and compensate for past medical abuses of communities.[12] As highlighted by Dr. Chandra Ford, Professor at Emory University's Rollins School of Public Health:

> "Mistrust is really a symptom. Mistrust is not the root of the problem. And so if mistrust is the symptom, then we must deal with the problem, the need to make our institutions more trustworthy."[40]

2.4. Trust, mistrust, and distrust: A critique

Patients who lack trust are less likely to follow providers' guidance and recommendations.[24] The current focus of research, education, and training on trust, mistrust, and distrust often treats these psychosocial factors as abstract and theoretical, rather than as an intimate and essential component of a patient-provider relationship and as a key driver of healthcare quality outcomes. There is a need to determine tangible interventions regarding how to optimally train current and future providers to earn trust and promote trustworthiness.[22,25]

2.5 Trustworthiness

Physicians are often assumed to have a patient's trust by default, but trust must be earned, not presumed. Shifting the focus to trustworthiness places the responsibility on providers and institutions to address mistrust and distrust through meaningful changes in behavior, policy, and accountability.[39]

Dr. LaVera Crawley was among the first to name trustworthiness as a critical focus and competency in healthcare and healthcare inequities.[21] Almost 25 years ago, she argued that it was critical to begin shifting the responsibility from patients to healthcare systems and providers because of well-documented findings that not all providers deliver equitable quality of care. A trustworthy physician demonstrates behaviors and qualities that foster confidence, trust, transparency, and accountability of their words, skills, and professional acumen.[24,25] Trustworthiness is the expectation that a clinical encounter will be beneficial, based on the perceived likelihood that the provider will act in the patient's best interest.

Studies have shown that patients are more likely to perceive clinicians as trustworthy when they believe that they are competent, concerned with their welfare, and share their values.[20,21] Demonstrating trustworthiness requires transparent and accurate verbal and nonverbal communication that ensures the patient feels valued. Additionally, being a trustworthy provider requires a balance of probing for and sharing challenging and complex information with the patient.[20,21,23-25,27,39]

3. Emphasizing provider trustworthiness in medical education and training

To begin to address inequities in healthcare quality and outcomes, we propose that medical education and training move beyond simply teaching physicians about healthcare inequities to focus on training them in trustworthiness. Promoting trustworthiness should be a core competency in medical education and training. In this section, we describe three strategies that can be incorporated into training. These strategies highlight skills that are fundamental to fostering trustworthiness, though they do not explicitly address the root causes of mistrust and distrust, nor are they exhaustive.

3.1. Communication

Compassionate, accessible patient-provider communication is a crucial foundation for trustworthy medical care. Research has shown that when physicians communicate with their patients using accessible, engaging language and actively listen, patients exhibit higher adherence to treatment plans and greater satisfaction with care.[20,21,23-25,27,39,41] For example, one study found that effective physician communication increased patient adherence by 19%, reinforcing its critical role in patient outcomes.[41]

Patient-centered communication has been shown to enhance patient engagement and increase positive perceptions of finding common ground,[42] a facet of perceived trustworthiness. Physicians who engage in feedback sessions, where they practice transparent communication, navigate difficult conversations, and address patient concerns, exhibit improved patient satisfaction and greater consistency in demonstrating trust-building behaviors.[42,43]

Furthermore, a study by Mazor et al. found that when physicians openly disclose errors and candidly discuss potential risks, patients are more likely to maintain trust in their providers, even in adverse situations.[44] Actionable strategies such as acknowledging uncertainty in medical decisions, admitting mistakes, and ensuring consistency in messaging are all essential components in promoting patient trust.[45-48]

The SPIKES framework, for example, is an evidence-based protocol for how physicians can effectively deliver bad news, comprising of six key components: setting up an interview, perceptions, invitation, knowledge, empathy, strategy, and summary.[49] The provider must set up an interview to sit down with the patient and ensure they are emotionally present, assess their perception and understanding of their own conditions, invite them to determine how much of the details of their condition they are ready to process, and then deliver the pertinent information accordingly. This strategy ensures information is conveyed clearly and the patient has full knowledge of their condition. The empathy component involves validating the patient's emotions and acknowledging how they may be feeling. The summary requires ending the session by providing an actionable plan going forward and ensuring the patient feels supported and can ask questions.[49] While further studies are needed to examine the efficacy of this method on patient satisfaction and trustworthiness,[51] a systematic review found that providers trained in the SPIKES framework for breaking bad or difficult news had significantly better communication skills, as rated by observers, compared to those who were not.[52]

The BATHE (Background, Affect, Trouble, Handling, Empathy) framework is another interview technique, which is utilized to better understand the psychosocial factors affecting patients' health. It involves: background, to elicit the context of the problem affecting the patient; affect, to examine the patient's emotional response; trouble, to identify what is the most troubling aspect to the patient; handling, to learn how the patient is coping; and empathy, to validate the patient's feelings and offer support. The use of these strategies and similar tools strengthens the physician's ability to develop and employ crucial interpersonal skills.[53] It can also help diagnose cases of anxiety and depression before they escalate further.[53] For example, in an illustrative case, a 23-year-old single mother of two preschool children was seen by her family physician. When asking about her background, the physician learned that her childhood had consisted of moving from foster home to foster home. When asked what was most troubling in her current life, she replied, "I know nothing about how to be a parent". The physician was accordingly able to empathize with her distress and discuss community resources available in the area.[54] Employing these communication tactics in a medical school curriculum can thus help future physicians with a framework for exemplifying trustworthy competencies to their patients.

3.2. Empathy and advocacy

Crawley also highlights that compassion, altruism, and empathy are central components of a trustworthy provider.[21] Demonstrating these skills may help patients and physicians build productive relationships.[46] A systematic review found that empathy training for physicians improves patient experience, increases patient adherence, and improves clinical outcomes.[47] Because studies suggest medical students experience a decline in empathy over time,[48] it is crucial to integrate relational skills early in training and reinforce them throughout medical education.

Research has shown that experiential simulations can increase empathy among trainees in health-related fields by offering a clearer understanding of the conditions faced by marginalized communities. One example is the Community Action Poverty Simulation developed by the Missouri Association for Community Action. In this exercise, nursing and education students participated in a two-hour structured simulation designed to represent the experience of navigating four weeks of poverty. Before the simulation, students' reflection journals commonly expressed themes such as discomfort, confusion, and the belief that poverty stemmed from individual choice. After the exercise, however, both groups reported greater empathy toward individuals and families experiencing poverty. Students described a new recognition that poverty constitutes an "endless cycle" of "day-to-day survival" and noted a deeper understanding of social justice issues and structural barriers that shape patients' lives. In particular, nursing students expressed a strengthened commitment to advocating for adequate resources for their future patients.

Importantly, increased empathy was accompanied by a heightened willingness to participate in social advocacy on behalf of marginalized populations. These findings suggest that similar experiential learning opportunities could be highly valuable in medical education. By immersing medical students in structured simulations that illuminate the lived reality of their patients, educators may help cultivate empathy, a core component of trustworthiness, and foster a greater sense of responsibility to engage in systemic reform and address institutional contributors to inequity.[55]

Research has also shown that physicians with service-based experience are more successful at fostering connections with marginalized populations and addressing the social determinants of health in clinical settings.[56,57,58.] Institutionalizing these stimulation experiences and immersive service experiences can ensure that students are prepared to understand the realities their patients face and help cultivate more empathetic providers who are willing to advocate for their patients.

3.3. Shared reflection

Trustworthiness also requires a commitment to reflection, self-awareness, and redressing injustices in healthcare.[59] This process involves understanding the history of racism in medicine, recognizing persistent healthcare inequities, examining the institutional history of one's training and practice, and critically reflecting on biases that influence patient care. Such an approach aligns with antiracism principles and cultural humility, acknowledging the deep-rooted structural racism in both the U.S. healthcare system and wider society.[59]

Narrative medicine plays a crucial role in fostering relational trust by enhancing a physician's ability to understand patients' lived experiences.[60] Importantly, emerging work suggests that this trust-building potential is amplified when narrative practices move beyond student-only reflection and actively include patients as co-participants. Chou et al. demonstrated that patient co-participation in narrative medicine can promote meaningful patient and community engagement among future physicians while advancing a "patient-as-partner" approach to care.[61] In their study, pre-clinical medical students and patients recruited from a population with high HIV prevalence participated together in a shared narrative medicine workshop.[61] Using a community-based participatory narrative medicine (CBPNM) model, participants completed weekly writing of personal narratives, engaged in close readings of literary texts, and offered structured feedback on one another's narratives. Group discussions centered on participants' narratives before authors were invited to respond and reflect. Thematic analysis from participants who completed the study revealed reciprocal relationships and "a sense of community" among medical students and patients of different demographics, an increased ability to "reflect on formative life experiences" and feelings "that their experiences had been acknowledged", and a unique and rare opportunity for medical students to escape the "performance-driven culture of medical school" and connect on "a personal level with patients and…with each other". Following the workshop, both physicians and patients were better able to see each other as "complex, multifaceted individuals" and "as human beings".[61] These findings suggest that CBPNM offers a promising framework for cultivating reflective practice, relational trust, and shared vulnerability between patients and future physicians, which are key components of trustworthiness in healthcare.

By developing these competencies in medical education, future physicians may be better equipped to address mistrust and distrust, strengthen patient-provider relationships, and improve health outcomes.[59 62-64]

4. Integrating trustworthiness into medical education: Applying the evidence

The strategies reviewed in Section 3 collectively illustrate that trustworthiness is not a single competency but a set of teachable behaviors that influence how patients evaluate the integrity of individual clinicians and the broader healthcare system. Applying the insights from Section 3, we propose a novel set of curricular reformations to help cultivate trustworthiness among future physicians.

First, the communication behaviors described in Section 3.1 should become core components of early medical training. Medical schools can embed longitudinal practice that normalizes transparency and teaches students how candid disclosure, even of imperfect information, functions as a trust-building act. Evidence-based frameworks such as SPIKES and BATHES should be taught to provide students with structured approaches for building these skills. In simulated clinical encounters in the pre-clinical phase, as well as clinical encounters during rotations, we propose that performance evaluations should include measured indicators to score students' capacity to convey honesty, reliability, and respect for patients' perspectives. These skills, when introduced early and reinforced consistently, may help students internalize communication as a core component of their clinical skillset.

Second, the empathy and advocacy-building approaches described in Section 3.2 suggest a basis for experiential learning that centers the lived realities of marginalized patients. While community engagement exists in some programs, we propose that medical schools develop mandatory multi-week experiential modules, such as immersive poverty simulations or social-needs navigation projects, that position students to better grasp the experiences and difficulties associated with navigating inequity firsthand. Furthermore, we propose students then reflect on how these experiences inform clinical responsibilities. Students would be expected not only to understand adversity but to imagine and articulate how physicians can help remediate structural barriers within clinical and institutional settings.

Finally, applying the insights from Section 3.3, a novel curricular approach would be to intentionally integrate these co-participatory narrative workshops into required coursework, allowing students to repeatedly encounter patients outside of clinical hierarchies and time pressures. Over time, these encounters reinforce the notion that meaningful patient-clinician relationships are built through openness, humility, and reflection. In this way, medical education can move beyond teaching students how to elicit patient stories toward helping them learn how to enter relationships where uncertainty and emotional risk are shared. This shift positions vulnerability as central to professional identity formation rather than something to be managed.

Together, these applications form a unified curricular approach that treats trustworthiness as a teachable, assessable component of medical professionalism. Rather than viewing lack of trust as a patient deficit, this framework positions trustworthiness as an active responsibility of clinicians and a structural goal of medical education. By anchoring their curriculum in communication, advocacy, and reflection, medical schools can apply an evidence-informed approach toward cultivating trustworthy physicians and addressing longstanding inequities in healthcare.

5. Limitations and next steps

Many of the strategies above fall short of addressing the institutional and historical breaches of trust that have shaped the relationship between marginalized communities and healthcare systems. For example, in the Tuskegee Syphilis Study, patients reported positive interactions with physicians and a sense of being cared for. Yet, they were systematically denied accurate information about their condition, care, and the effective treatment.[10] This history underscores that relational warmth and communication skills do not ensure ethical or trustworthy practice. Ultimately, isolated interventions focusing on proximal attributes that may contribute to trustworthiness are not sufficient on their own, particularly in the context of deep-rooted racial and ethnic inequities.[45,56,62,63] Therefore, the proposed strategies to foster trustworthiness are insufficient in isolation. Rather, they must be accompanied by efforts to address systemic betrayal.[4] Thus, another limitation is that we are not necessarily presenting an all-encompassing solution to achieve trustworthiness in care, as that has not yet been elucidated. Rather, our goal is to present interventions that are part of a broader multi–pronged solution that we must continue to work towards. Ultimately, these efforts must be continued and expanded.

Additionally, implementing the proposed frameworks is complex and requires restructuring the medical curriculum, making it unrealistic to assume these changes will occur soon. Instead, we hope this manuscript inspires steps in the right direction and provides a framework for medical education to build on existing initiatives.

Another limitation is the difficulty of measuring the success of these interventions. A proposed strategy to measure health care organizations' trustworthiness is to publicly report medical error rates stratified by race and ethnicity. This would increase transparency for patients from historically marginalized groups and highlight areas where clinicians need to improve care processes to reduce inequities.[24] However, this measure cannot be used in isolation, as medical error rates can be attributed to a multitude of factors beyond trustworthiness, and trustworthiness similarly does not exclusively translate to medical error rates. This measurement would need to be paired with qualitative assessments of patients' perceived trustworthiness of providers, which would require a universally accepted, all-encompassing definition of "trustworthiness". Thus, it is difficult, if not impossible, to immediately assess the success of the proposed initiatives, and more work is needed to build consensus in medical education on what this term means.

Current medical education frameworks rarely explicitly provide physicians with tools to name, discuss, or address the implications of medical mistreatment's legacy. Thus, effective curricular reform must begin with medical education, acknowledging that we do not yet know how to fully overcome the long history of institutional betrayal in American healthcare. Yet, we should use the knowledge we have to begin explicitly grappling with these issues and focus on the roles current and future physicians can play in addressing these inequities.

We propose possible interventions to promote provider trustworthiness. Future developments in medical training should be co-designed with communities who have been harmed, centering on their definitions of what trustworthiness looks like and the actions necessary to earn their trust. Medical training must also emphasize recognizing when patient skepticism is justified and emphasize practicing humility and accountability.[62,63]

Conclusion

As the healthcare landscape evolves, medical education and training should prioritize ensuring physicians intentionally express trustworthy characteristics in their patient interactions. Such curricula should develop communication, empathy, and advocacy skills, and strategies to promote self-reflection. Moreover, this training should be implemented with the understanding that building competencies in trustworthiness alone is not sufficient to foster trust among historically marginalized communities. Physicians must also be aware of the historical and structural contexts that underlie patients' views and skepticism toward the healthcare system. Ultimately, building trustworthiness begins with acknowledging the legacies of systemic harm and recognizing that trust cannot be demanded by institutions that have yet to repair the damage they have done.

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“Just Swapping One Drug Out for Another”: Beliefs and Attitudes Influencing Support for Medication-Assisted Treatment in Rural Communities

Chase Dobson

“Just Swapping One Drug Out for Another”: Beliefs and Attitudes Influencing Support for Medication-Assisted Treatment in Rural Communities

Chase Dobson[1]

[1] Georgetown University, Washington, D.C., U.S.A.
Email: cwd41@georgetown.edu

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Abstract

Medication-assisted treatment (MAT) is a highly effective treatment method for substance use disorder (SUD) that combines regularly ingested medications with tailored behavioral and cognitive assistance to decrease withdrawal symptoms. Public stigma and personal attitudes can impact the proliferation and efficacy of MAT services. Therefore, understanding the content and prevalence of relevant social factors in rural communities is essential for improving the rural treatment landscape. The aims of this study are to (1) qualitatively examine the specific personal beliefs and attitudes (“belief factors”) present among rural residents that contribute to their support of or opposition to both MAT and government funding for MAT and (2) qualitatively examine the factors of rural social life that could influence those beliefs and attitudes. From May to July of 2025, surveys and interviews regarding personal and community perceptions of people with SUD were conducted with 25 residents of communities from 8 rural counties and 1 non-rural county in Vermont, Montana, New York, Massachusetts, New Jersey, and Kentucky. Surveys and interviews were transcribed and coded to identify the specific personal beliefs and dispositions recurring among the interviewees that influence their personal level of support for MAT. This study identifies eight core factors (generally categorizable as either empathy-related, political, or scientific beliefs) as influential for an individual’s level of support for MAT. Also identified are three core social factors of rural life that could influence an individual’s level of support for MAT. These results contain critical implications for future literature and MAT-related messaging campaigns predicated upon individual belief systems.

Keywords: substance use disorder, health policy, rural sociology

1. Introduction

Substance Use Disorder (SUD) is an urgent public health crisis in the United States (U.S.). The U.S. has seen a consistent increase in overdose-related fatalities since 1999, with annual deaths increasing from 20,000 in 1999 to over 111,000 in 2022. Despite a noticeable 27% drop in mortality between 2023-2024, the dangers posed by SUD remain a pressing concern.[1] Individuals with SUD have higher rates of comorbidities and mortality from a variety of causes (i.e., mental disorders such as psychosis and depression).[2–7] Beyond individual health impacts, SUD has significant costs for economic productivity and the criminal justice system.[3] One of the most common types of SUD is Opioid Use Disorder (OUD). OUD's impacts on public health are staggering. For example, in 2023, overdose-related fatalities involving opioids accounted for around 76% of all overdose-related fatalities in the United States.[7]

Medication-assisted treatment (MAT) is one of the most critical OUD treatment methods.[8–11] MAT involves using medications that address addictive properties and is traditionally supplemented by cognitive therapy. Two popular medications for OUD-oriented MAT are methadone and buprenorphine. MAT medications hold several promising properties for their users, including helping to "reduce the cravings for, and the euphoria (extreme pleasure) experienced from, opioids. They also lower the risk of the dangerous side effects of opioids. Some medications may also reduce the risk of subsequent overdose".[10,11]

Rural areas have been largely neglected in many critical aspects of SUD treatment and left with scarce resources in early prevention efforts, including access to MAT. In addition to containing disproportionately fewer clinics and hospitals, rural areas have disproportionately lower levels of access to mental health treatment, drug treatment, prevention, and harm reduction programs compared to urban areas.[12] The CDC reported in 2024 that "rural areas have a lower percentage of people reporting illicit drug use than urban areas" and that "among people who had used illicit drugs in the past year, the percentage of people with drug use disorders is similar for rural and urban areas." However, usage statistics do not tell the whole story—it is also important to note that "the effects of illicit drug use are higher in rural areas," an effect reinforced by the "rural risk environment".[12,13]

Addressing the opioid epidemic bears unique challenges for rural communities, lending urgency to policy measures targeted at alleviating these impacts for underserved rural areas.[9] Critical considerations are the unique healthcare access challenges and social landscapes of many rural communities, which could significantly influence both levels of public support and understanding of various intervention strategies. While strong family and community support networks can often serve as valuable resources in these communities, social and family networks in rural areas also facilitate prescription drug diversion.[8] Public stigma toward SUD and the personal attitudes of community members are significant barriers for OUD treatment efforts, including MAT services.[14–18] Alongside significant healthcare access barriers posed by rural geography and associated socioeconomic disadvantages, rural communities often contain unique social factors that can complicate local treatment efforts. Thomas et al. write that rural social environments could "amplify risk" through knowledge deficiencies, a lack of anonymity, and stigmatization.[19] In the context of MAT, understanding the content and prevalence of relevant attitudes in these communities is essential for efforts to improving the rural treatment landscape.

While prior research has examined rural attitudes toward SUD and SUD treatment, more qualitative study is required to identify and delineate the specific personal beliefs and attitudes which contribute to an individual's level of support for MAT and taxpayer-funded MAT expansion in rural communities. This study expands on prior research by employing a unique framework of "belief factors" and specifically investigating the attitudes of participants toward public funding of MAT programs. The aims of this study are to (1) qualitatively examine the specific personal beliefs and attitudes ("belief factors") among rural residents that contribute to their support or opposition to MAT and (2) qualitatively examine the factors of rural social life that could influence those beliefs and attitudes.

2. Background: empathy, scientific beliefs, and political philosophy as influential factors

The efficacy of MAT efforts can be impacted by a myriad of social, logistical, and socioeconomic complications. For this research, it is important to differentiate between these three categories. Socioeconomic factors impacting MAT in the context of this study refer to the specific disadvantages of a community caused by a comparative lack of resources and legal, cultural, or institutional disadvantages. In contrast, however, logistical issues could also arise such as the material challenges of administering the treatment caused by hurdles such as geography and standard regulatory procedure. Finally, literature examining the social factors impacting the prevalence and efficacy of SUD treatment primarily focus upon the broad category of "public stigma." Nieweglowski et al. define public stigma as "the dehumanization of individuals by the projection of stereotypes and prejudice through discriminatory acts based on perceived differences in social identity from society or participation in undesirable social categories, such as substance use".[15] Prior studies have shown that public stigma impedes access and utilization of treatment and support services for SUDs, including medication-assisted treatment.[14–16] Kennedy-Hendricks et al. found higher levels of public stigma toward people with prescription opioid use disorder to be associated with greater public support for punitive policies and lower support for public health-oriented policies, such as MAT.[20]

2.1 Social stigma as a key complicating factor

Despite the prevalence of stigma toward people with SUDs,[3,15,21–23] recent literature "refutes the notion that SUD is a choice but supports the view of SUD as a chronic relapsing disease of the brain".[3,17] Among other physiological factors, people with SUD experience an overall reduction in the sensitivity of the brain's reward system, especially the brain circuits involving dopamine.[24] In the U.S., the proliferation of the brain disease model has directly contributed to increased support for less stigmatizing punitive approaches and increased public health-oriented efforts.[3] Previous research has examined the impact of stigma on individuals in recovery from opioid use disorder in a rural setting, with study participants identifying hospitals, government agencies, and pharmacies as the primary locations where they had stigmatizing experiences.[17]

Many studies have examined differing levels of stigma among rural communities and physicians.[3,22,25] In a study by Franz, Dhanani, and Miller, physicians in rural areas reported higher levels of bias toward patients with opioid use disorder than their urban counterparts.[25] Studies have not found that there is a significant difference between rural and non-rural areas in levels of community stigma, with Ashworth et al. finding no significant difference as measured by the CAMI scale ($t = -0.398$, $p = 0.691$) or the Affect scale ($t = -0.432$, $p = 0.666$) between rural and non-rural participants.[26] However, in the same study, Ashworth et al. found that stigma intervention strategy effectiveness likely differs across rurality.

Despite similar levels of stigma between rural and non-rural populations, stigma among rural populations was shown to be “exceedingly difficult to change.” Other studies have sought to identify key methods of confronting stigma among general populations, with McGinty et al. arguing that “narratives combining personal stories with depictions of structural barriers to mental illness and substance use disorder treatment can increase the public’s willingness to invest in the treatment system without increasing stigma”.[27]

The framework of beliefs and attitudes plausibly contributing to an individual’s support or opposition to SUD-related policies, and the relevant factors of rural social life, is a complex and understudied topic. Given the focus of prior literature toward the impacts of social stigma upon support for SUD-related policies and the impacts of rurality upon stigma, we might expect to find that the most critical attitudes and beliefs in determining support for MAT thereby stem from an individual’s underlying level of “dehumanization” and “prejudice” toward individuals with SUD.[15] However, such an expectation lacks a sufficiently robust framework by which to consider the motivations an individual may have to support or oppose MAT and MAT funding. Moreover, such an explanation does not allow for sufficient consideration of the specific features of rural social life which may impact an individual’s belief system. While literature has supported the notion that political party affiliation can impact support for SUD-related policies, this consideration primarily acts to connect popular self-applied labels with policy support, failing to explore an individual’s underlying beliefs.[28]

2.2 Importance of empathy

Prior literature on SUD stigma has implicitly explored several relevant categorizations of the beliefs and attitudes explored in these findings. Research suggests, for example, that **empathy** for substance users can substantially influence policy views. In the aforementioned study by Kennedy-Hendricks et al., higher levels of public stigma were found to be associated with lower support for public health-oriented policies. Survey metrics quantifying “personal stigma” were largely indicative of individual dispositions to accept and support individuals who use substances as human beings confronting unique personal challenges.[20] More generally speaking, Nembhard et al.’s review of English-language publications examining healthcare provider empathy detailed “the importance of empathy to health care outcomes” and argued that “organizational-level interventions for systematic improvement are lacking.”[29] Nevertheless, utilizing the American Psychological Association’s definition of empathy as “understanding a person from their frame of reference rather than one’s own, or vicariously experiencing that person’s feelings, perceptions, and thoughts”,[30] there has been little sociological research to date specifically interpreting the impacts of empathy on support for policies surrounding SUD treatment.

2.3 Importance of scientific beliefs

Studies have also demonstrated the importance of an individual’s **scientific beliefs** in determining their level of support for SUD-related programs. In a nationwide randomized study, Kelly et al. found that "to reduce stigmatizing blame, biomedical ‘chronically relapsing brain disease’ terminology may be optimal.”[31] The study also found that “to increase prognostic optimism and decrease perceived danger/social exclusion, [the] use of non-medical terminology (e.g., 'opioid problem') may be optimal." Heilig et al. argue that "denying that addiction is a brain disease is a harmful standpoint since it contributes to reducing access to healthcare and treatment, the consequences of which are catastrophic."[32] Research therefore suggests the importance of scientific interpretations and narratives surrounding SUD in preventing stigmatized and ineffective public health approaches. However, further scholarship is needed to examine how scientific dispositions and interpretations of SUD influence public support within the context of an individual's wider network of personal beliefs and attitudes (e.g., political attitudes, predisposition to empathy, religious beliefs, etc.)

2.4 Importance of personal political beliefs

Previous literature has also suggested that **personal political beliefs** play a substantial role in generating support or opposition to SUD treatment programs. Barry et al. found political party affiliation to be a major predictor for attitudes toward SUD treatment.[28] The importance of political affiliation as a determinant for policy support could reflect underlying beliefs regarding the moral responsibility of taxpayers to support those in recovery for medical or mental health-related conditions. Pyra et al. found that "political affiliation, racial attitudes, and opioid stigma influence public support for public health responses to address opioid use disorders."[18] Additionally, the authors argued that "messaging that focuses on structural determinants may likewise be differentially effective by political group." The specific political beliefs contributing to support for SUD treatment programs have not yet been conclusively determined by prior research.

There is sufficient evidence to support the notion that a more diverse array of beliefs than those denoted simply as "stigma" may impact support for MAT. Moreover, there is sufficient evidence to demonstrate that rural communities bear unique social factors that can impact this array of beliefs. Previous studies have sought to explore perceptions and attitudes towards MAT in the cultural and socioeconomic contexts of rural communities, with Richard et al. finding that, in Appalachian Ohio, pervasive MAT-related stigma in the region is impacted by "(1) a 'conservative' culture in which abstinence is necessary to be in recovery successfully, (2) fear of medication diversion and abuse, and (3) drug court policies that keep MAT out of the criminal justice system."[33] Given the potential for public stigma and personal attitudes to impact the proliferation and efficacy of MAT services, understanding the content and prevalence of relevant beliefs and attitudes in rural communities is essential for efforts at improving the rural treatment landscape.

3. Methods

From May to June 2025, semi-structured interviews regarding personal and community perceptions of people with SUD, support for medication-assisted treatment, and rural social barriers were conducted with 25 individuals, including 11 healthcare professionals and 14 community members (Figure 1). Given the study's explicit focus on rural individuals, interviews were conducted with residents of 8 rural counties and 1 non-rural county. Both physicians and non-physicians were deliberately included in the recruitment process. By virtue of their position, the physician demographic group has received specific medical training and may be more likely to interpret SUD and other chronic health conditions

Race
- *Caucasian/White: 24, 96%*
- *Hispanic/White: 1, 4%*

Age
- *Average age: 49*
- *Minimum: 18*
- *Maximum: 82*

Education Level
- *11th Grade: 1, 4%*
- *High School Degree: 3, 12%*
- *BA: 5, 20%*
- *BFA: 2, 8%*
- *MA: 1, 4%*
- *JD: 1, 4%*
- *MD: 12, 48%*

Locations
- *Bennington, VT: 9, 36%*
- *Caledonia, VT: 1, 4%*
- *Camden, NJ: 1, 4%*
- *Park, MT: 7, 28%*
- *Gallatin, MT: 2, 8%*
- *Washington, NY: 2, 8%*
- *Berkshire, MA: 1, 4%*
- *Warren, KY: 2, 8%*
- *Pulaski, KY: 1, 4%*

Gender
- *Male: 12, 48%*
- *Female: 13, 52%*

Figure 1. Participant demographics

through a medicalized lens. Analyzing interviews with this group in contrast with interviews of non-physicians enabled a more nuanced exploration of the influence of certain scientific beliefs on MAT support. The initial goal for recruitment was 30 participants; an eventual adjustment to 25 participants was made due to time constraints and data saturation.

Participants were assigned identifying numbers corresponding to their order of participation (referred to either as "P_" or "Participant _"). Each participant was asked to complete an eight-question survey discussing personal perceptions of substance users. Surveys and interviews were transcribed and analyzed to identify the specific personal beliefs and dispositions recurring among the interviewees that influence their personal level of support for MAT. Through pre-coding analysis, eight core factors were identified as influencing (a) support for MAT as a treatment plan and (b) support for public funding for MAT expansion. Interviews were subsequently coded to identify the presence or absence of each belief factor among participants, and these results were compared to each participant's support or lack of support for MAT. Similarly, through pre-coding analysis, three social factors and two logistical factors of rural life were identified as potentially influencing community support for substance users. Interviews were subsequently coded to identify each specific mention of these social factors. This study was approved by Georgetown University's Institutional Review Board.

3.1 Participant selection

Participants were selected via snowball sampling, including direct requests to local businesses and community organizations such as hospitals, libraries, churches, and educational centers. Contact lists for initial direct requests were sent to organizations based on references in online materials and geographic positioning in the given county. After initial points of contact were established within each community, both further electronic outreach and direct, in-person requests were spread to potential participants. 24 out of 25 participants lived in rural areas. One resident of a non-rural county, who had traveled to a rural area for classes and had experience residing in a diverse array of living environments (particularly environments with substance use), was included. The principal investigator utilized personal contacts within Vermont and Kentucky as the initial points of contact to identify multiple participants. Each participant was offered a $10 cash stipend for participation. All participants were above the age of 18.

3.2 Interview and survey design

Interviews lasted between 10 to 25 minutes and conducted by the P.I. and sole author of this study. Interview and survey answers were de-personalized. Pilot interviews and surveys were not conducted. Survey questions (Appendix I) were adapted from Kennedy-Hendricks et al.'s 5-point Likert Scale surveys quantifying personal stigma toward those with prescription opioid use disorder.[20] Surveys and semi-structured interviews (the scripts of which are available in Appendix I and II, respectively) were conducted in a range of locations at participant discretion, with some being moved to virtual meetings due to scheduling conflicts.

3.3. Data analysis

Survey responses were scored on a scale of 1-5, with the most stigmatizing answer selections (i.e., strong disagreement to question 1 or strong agreement with questions 6 or 7) receiving a score of 5. Scores were converted to percentages and averaged for each participant. However, these composite scores were not included in the final analysis, as composite scores were generally less helpful in predicting MAT support than question-specific analysis. These surveys served both to ensure a holistic review of the dispositions expressed in interviews and as a strong benchmark by which to standardize participants based upon certain attitudes toward substance users.

After key insights were labeled and noted during the interview review process, the sole author and P.I. of this study generated a codebook with the intention of both accommodating the subjects' diversity of belief systems and modes of expression with the necessity of specific criteria enabling concrete differentiation between each code. The P.I. coded interviews in the QualCoder application following the principles of thematic analysis of interview meaning.

The factors contributing to support for MAT and MAT funding, which were included as distinct codes, were determined by a retrospective analysis of surveys and interviews. After all interviews were completed, the P.I. organized said transcripts based upon each individual's level of support for MAT and subsequently reviewed those transcripts for relevant patterns in the expressions of personal beliefs. Factors were included and enumerated if they fulfilled the criteria of (A) bearing a differentiated impact upon an individual's belief system and (C) bearing clear relevancy to the question of MAT support. Under the coding guide (Appendix III), *"low"*, *"medium"*, and *"high"* codes of each factor do not indicate that a given participant's belief surpasses a certain quantifiable threshold. Rather, a "high" code indicates that the respondent displays a belief in a manner that plausibly contributes to their support for MAT/MAT funding. A "medium" code indicates that the respondent displays a factor in a manner that does not detract from their level of support for MAT/MAT funding, but that also does not clearly generate additional support for the treatment method. Finally, a "low" code indicates that the respondent displays a notable lack of the belief, which plausibly detracts from their level of support for MAT/MAT funding.

The factors indicating support for MAT/MAT funding included as distinct codes were determined by a similar retrospective analysis of interviews. Under the coding guide (Appendix IV), "MAT Support Level" refers to an individual's level of support for Medication Assisted Treatment as a plan for those struggling with opioid use disorder and general substance use disorder.

Under the attached coding guide, "treatment support" indicates the clear expression of support for MAT. "Treatment conditional support" refers to beliefs generally characterized as support for MAT, expressed with at least one notable condition for that support. "Treatment conditional opposition" refers to beliefs generally characterized as opposition to MAT, expressed with at least one notable condition under which support would be warranted. Finally, "treatment opposition" refers to the clear expression of opposition to MAT. Support levels for taxpayer-funded MAT expansion were similarly defined.

The factors of rural life identified via interviews were determined via retrospective analysis of interview transcripts, following the same process as the delineation of codes for "belief factors." Codes were delineated as "N" or "P", indicating that a participant identified rural social or logistical factors as either negative or positive, respectively.

4. Results

Throughout the factor identification process, three general categories emerged as critical for determining support for MAT: empathy, scientific beliefs, and political beliefs (Figure 2). Further intra-category distinctions between factors were drawn based upon repeated occurrences of participants displaying conflicting or divergent attitudes within categories—i.e., personal empathy in philosophical compassion but not in concrete disposition, trust in modern medications but not medical institutions, etc. The most important factors in determining support for MAT and MAT public funding were personal empathy, empathetic disposition, trust in medical institutions, trust in medical science, belief in addiction as perpetuated by biochemical factors, belief in addiction as caused by biochemical or external factors, belief in the moral responsibility of the government to help users, and belief in the security/financial urgency of confronting SUD. Figure 2 visualizes this framework within specific categories. Table 1 displays the portion of those in support or conditional support of MAT and MAT funding, displaying each factor (e.g., 94% of respondents in support of MAT as a treatment plan displayed a belief in addiction as caused by biochemical or external factors). Appendix V contains a detailed breakdown of each participant's beliefs and level of support for MAT and MAT funding. Each of these three general categories represents a critical aspect of the belief framework, which contributes to an individual's level of MAT support. A detailed description of each category is available in Appendix VI.

After an initial review of participants' discussion of the impacts of rurality, two broad categories of "social impacts" and "material impacts" were delineated. The most frequently mentioned social impacts of rurality were labeling, social ties, and resiliency narratives. The most frequently mentioned material impacts of rurality were generally divisible into the categories of healthcare access and socioeconomic issues.

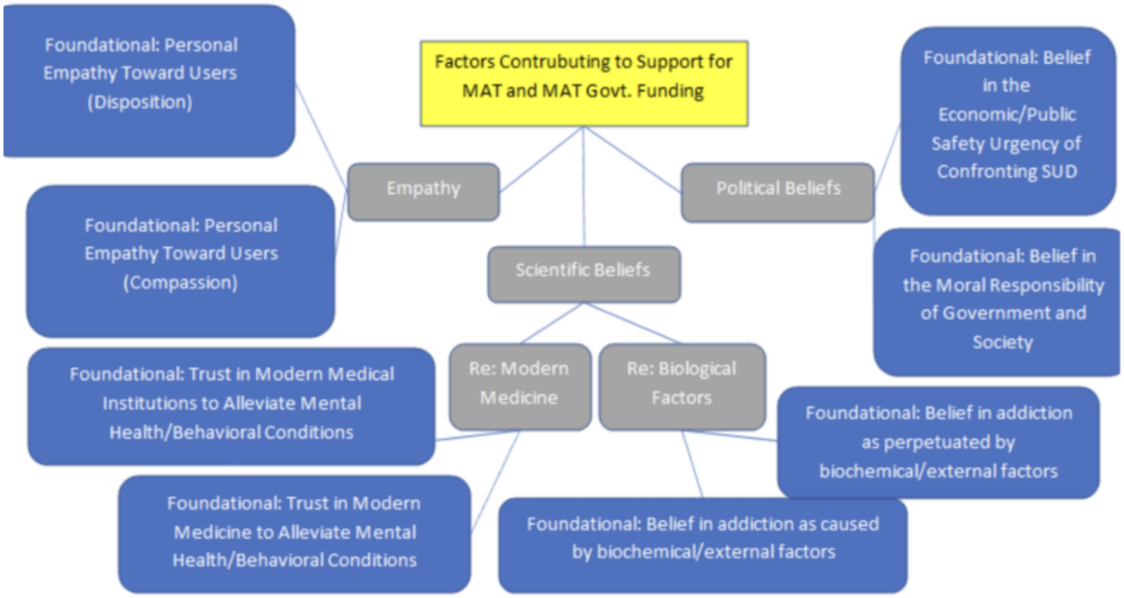

Figure 2. Factors contributing to support for MAT and MAT funding

4.1 Empathy vs. scientific beliefs

Originally, two broad categories of *"empathy"* (toward those with SUD) and *"scientific understanding"* (of substance use) were identified as comprising the framework of beliefs that impact support for MAT. P1, a physician working with a rural opioid treatment provider, described his approach to building MAT support:

> *"[Bring in] a person who treats with medication, and then you bring in an individual who struggles with substance use disorder... And so they tell their story and people humanize it, which is very important."*

"Empathy" is a more accurate description of the latter factor than "humanization," as many of those who do not display direct empathy, sympathy, support, and solidarity with people struggling with SUD could still not be described as "dehumanizing" those users. P1's empathy-based *and* science-based support for MAT exemplify the far end of a "spectrum" of support. In contrast, P9, who had very negative views of substance users and a strong aversion toward "Western medicine," was situated on the other end of that "spectrum":

> *"I think it comes down to personal choice..[because] no one's going to save them, like the community can't save you."*

It is important for both representatives of academia and those involved with community health initiatives to delineate between the two general categories of empathy and scientific beliefs when developing relevant communication or research strategies. These findings repeatedly showed that the impact of a lack of identified beliefs in either category can be effectively 'cancelled out' by strong affiliation with the other. P24, a former physician, held a low level of empathy similar to that of P9, saying:

> *"I realize that there are many people who are addicted after a painful experience and wound up addicted because of that, but I would differentiate between those folks and the people who have been on recreational drugs and can't drop it."*

Table 1. Presence of each factor in support of MAT and MAT funding (i.e., portion of supporters and conditional supporters displaying given factor)

Treatment Support

Factor	Support	Conditional Support	Support + Conditional Support
Addiction as caused by biochemical/external factors	94%	50%	82%
Addiction as perpetuated by biochemical factors	94%	83%	91%
Trust in modern medicine	100%	100%	100%
Trust in modern medical institutions	88%	33%	73%
Individual empathy toward users	100%	83%	95%
Empathy manifested in everyday disposition	69%	33%	59%
Moral responsibility of society	100%	83%	95%
Security/economic urgency (note: categorization infrequently applied)	6%	67%	23%

Funding Support

Factor	Support	Conditional Support	Support + Conditional Support
Addiction as caused by biochemical/external factors	85%	50%	82%
Addiction as perpetuated by biochemical factors	95%	100%	95%
Trust in modern medicine	100%	50%	95%
Trust in modern medical institutions	75%	0%	68%
Individual empathy toward users	100%	100%	100%
Empathy manifested in everyday disposition	65%	50%	64%
Moral responsibility of government	100%	100%	100%
Security/economic urgency (note: categorization infrequently applied)	25%	0%	23%

However, P24 held a much higher trust in medicine and scientific theory, saying:

> *"As long as it's effective, I'm for it."*

Despite their shared lack of empathy toward users, P24 conditionally supported MAT. This attitude sharply contrasted P9's complete opposition. It also notably contrasted with the conditional opposition of P15, an interviewee who displayed a frustration with users themselves similar to P9. Both of the latter participants notably expressed much more skepticism toward both medicine and medical explanations for SUD; in the context of a lack of empathy, an individual's scientific beliefs can prove critical in determining their support for MAT. Conversely, in the context of a lack of confidence in MAT's scientific basis, an individual's level of empathy can prove critical in determining their willingness to consider new perspectives regarding SUD.

4.2 Empathy

The category of *"empathy"* (Appendix VI) is further divisible into **"personal empathy"** and **"empathetic disposition."** Whereas "personal empathy" refers to a given respondent's belief that substance users deserve compassion and willingness to humanize substance users, "empathetic disposition" refers to a given respondent's willingness to engage with substance users as they would engage with non-substance users and a respondent's willingness to protect substance users' rights to widely accessible spaces and services.

Personal empathy and empathetic disposition are by no means always co-occurring. Despite holding relatively stigmatizing beliefs regarding everyday interactions with substance users (such as disagreement with the statement "I would be willing to accept that a person addicted to drugs has married into my family"), many people nevertheless display highly empathetic attitudes toward those struggling with SUD on a philosophical (rather than dispositional) level. Seven participants provided answers to survey and interview questions indicating either medium or high levels of stigmatization in their everyday disposition toward substance users (i.e., reluctance to accept those with SUD as new family members or willingness to allow for the denial of housing to those with SUD) despite displaying personal empathy in their interviews. These factors appear distinct in impact on MAT support, with 95% of those in support or conditional support of MAT displaying personal empathy and only 59% displaying empathy manifested in personal disposition. While the sample size of N=25 is not large enough for these results to conclusively suggest the quantitative importance of either factor, coding and analysis of participant answers strongly suggest that these two factors play distinct roles in informing support for MAT.

4.3 Scientific beliefs

The category of *"scientific beliefs"* (Appendix VI) is further divisible into two sub-categories: *"beliefs re: modern medicine"* and *"beliefs re: biological and external causes of addiction."* Many people hold a trust in modern medicine that may otherwise enable full support for MAT if not for their skepticism toward either the brain-disease model of addiction or sociological explanations for addiction. Conversely, many people understand the biological and sociological explanations for addiction but hold skepticism toward medical institutions, preventing them from fully supporting MAT. For example, Participant 7, a social worker from a rural area who was supportive of MAT with several notable conditions and concerns, displayed an understanding of external and biochemical causes for addiction while also being distrustful of modern medical institutions to responsibly administer MAT. They stated:

> *"I think that there's a lot of turnover in our community for our MAT programs […] a lot of times, those individuals that are seeking treatment are doing so because they don't have the skills themselves, so they rely on those professionals to really know what they're doing, and I think that can fall short."*

P12, a house cleaner with little prior knowledge of MAT, was similarly concerned about some aspects of MAT administration despite a relatively understanding perspective regarding the biochemical factors perpetuating addiction.

The subcategory of *"beliefs re: modern medicine"* is further divisible into the factors of **"trust in modern medical science"** and **"trust in modern medical institutions."** This distinction is particularly relevant in the context of conditional support or opposition to MAT. Some people may hold a trust in modern medications but do not trust the medical system to equitably or responsibly administer those medications. P9, who was generally distrustful of "Western medicine," was wholly opposed to MAT as a prospect for treatment. Eight participants displayed skepticism toward medical institutions, often informed by concerns regarding rural facility capacity (a concern cited by three participants) or regarding the motives of healthcare entities (a concern cited by two participants). Of the eight participants who were influenced in their support by a skepticism toward medical institutions, only two displayed a similar skepticism toward modern medicine itself. Furthermore, of these eight participants, four displayed personal empathy toward users and a belief in the moral responsibility of the government to help users. High levels of empathy and belief in the moral responsibility of the government to help those with SUD can often generate *conditional* support for MAT, tempered by concerns regarding institutional capabilities.

These factors appear distinct in their impacts on MAT support, with 100% of those in support or conditional support of MAT displaying trust in modern medicine and 73% displaying trust in modern medical institutions. To reiterate, while the sample size of N=25 is not large enough for these results to conclusively suggest the quantitative importance of either factor, coding and analysis of participant answers strongly suggest that these two factors play distinct roles in informing support for MAT.

"Belief in addiction as caused and perpetuated by biochemical and external factors" is further divisible into the factors of **"belief in addiction as *caused* by biochemical and external factors"** and **"belief in addiction as *perpetuated* by biochemical and external factors."** These two factors appear often indistinguishable among those displaying both beliefs. For these individuals, such a connection appears to be intuitively compelling. However, many people hold the co-existing beliefs that developing SUD represents an initial moral failure *and* that SUD is ultimately driven by biochemical changes. Conversely, some may hold a belief that addiction could be caused by adverse external or biological circumstances while at the same time believing that SUD is ultimately perpetuated by a lack of willpower or spiritual integrity of the individual. P14, a religious participant who recently moved into Montana, stated regarding the initial cause of addiction:

> *"Nothing really sets me apart from someone that's been born and raised here [...] I still am affected by high housing cost. Lack of childcare. We are still affected, but it helps us process and like cope, I think better than people who don't have religion of some kind."*

In contrast, P22 also described religion as critical in the conversation around SUD; however, he was more willing to characterize SUD as originating from social causes, instead arguing that religious inspiration was the best path *away* from SUD. In other words, P22 indicated that SUD was perpetuated predominantly by a lack of spirituality, rather than by a biochemical adjustment. While the distinction between "cause" and "perpetuation" is often muddled, the emergence of these two factors as different items of personal belief is not to be ignored. These factors appear distinct in their impacts on MAT support, with 82% of those in support or conditional support of MAT displaying belief in addiction as *caused* by biochemical and external factors, and 91% displaying belief in addiction as *perpetuated* by biochemical and external factors.

Many studies regarding rural levels of SUD-related stigma have lacked distinctions between the physician and non-physician demographics. Given the high likelihood of physicians to have interacted with medical institutions and medicalized explanations of SUD, delineating between physicians and non-physicians enabled a more nuanced exploration regarding the importance of scientific beliefs in generating MAT support. Physicians frequently cited both professional exposure and scholarly exposure as motivating beliefs within this category, and the factors of "scientific belief" appeared to be of outsized importance in motivating enthusiasm as compared to the non-physician demographic.

Despite varying levels of empathy among physicians, support for MAT remained strong. Physicians displayed higher levels of scientific belief across all four categories; of the 12 physicians included in the study, 10 displayed "high" levels of belief in all four factors across the categories of "beliefs re: modern medicine" and "beliefs re: causes of addiction." In contrast, within the "trust in medical institutions" category alone, 6 of 13 non-physicians displayed "low" levels of belief. Physicians cited exposure to convincing evidence and the trust in modern scientific formulations as key factors incentivizing their trust in modern medicine. Moreover, they frequently cited their participation in and exposure to the success of modern medical systems as incentivizing trust in modern medical institutions. Within the category of "beliefs re: causes of addiction", physicians frequently cited the medical model of addiction as an emerging understanding supported by their profession. P3, a physician, stated:

> *"I think there's a rising awareness that addiction is an illness, that we're all potentially at some risk."*

Only two physicians did not display "high" coding across each category. In both cases, the deviation appeared to result from a more nuanced interpretation of addiction gleaned from their professional experience, rather than a philosophical objection to scientific explanations.

4.4 Political beliefs

The two broad categories of *scientific understanding* and *empathy* are not entirely sufficient in capturing the range of attitudes contributing to support or opposition toward MAT. *Belief in the political urgency of addressing SUD ("political beliefs")* is a critical category. For example, several participants (P11, P21, P3, and P14) who were supportive of MAT and MAT funding described the prevalence of "Not in My Backyard" attitudes in their community, which could prevent a community member from supporting either MAT services or government funding for those services despite high levels of personal empathy and medical understanding. P11, a physician, described community conversations wherein such views were expressed:

> *"A lot of people were in support of the medical treatment for it. Less people [were in support of] of having that person in their backyard."*

None of the participants demonstrating the necessary political beliefs lacked personal empathy toward users. However, the findings suggest that many of those with political beliefs otherwise suggesting support for MAT do *not* hold full confidence in medicine or medical explanations for addiction, and that this lack of confidence adds nuance to their positions regarding MAT access. In most of these cases (for example, Participants 7, 10, 12, and 14), support for funding will likely remain strong. However, because of significant concerns surrounding modern medical systems or medicalized explanations, support for MAT as a treatment method can be hampered and more accurately characterized as 'conditional'. Participant 23 has been in recovery for over seven years from SUD, and, while they described significant empathy and belief in the moral responsibility of government, prior negative experiences with the recovery system and a belief that MAT represents "just swapping one drug out for another" led to a conditional opposition toward the treatment plan. However, because P23 had experienced the benefits of well-funded recovery centers, her support for such facilities was strong. *Political beliefs* regarding governmental responsibilities can therefore generate a diverse array of results when combined with varying degrees of *scientific understanding* and *empathy*.

Within the "political beliefs" category, the factors of **"belief in the moral responsibility of government (BMRG)"** and **"belief in security/financial urgency (BSFU)"** are both influential in determining an individual's willingness to support government funding for MAT (Appendix VI). Frequent mentions among MAT supporters of the "Not In My Backyard" belief system indicated that those participants both recognize the importance of accepting the government's moral responsibilities and hold disdain for those who do not. A common example of political views contributing to MAT support is the belief that government assistance for those struggling with SUD is a fundamental responsibility of government. Participant 22, an 18-year-old volunteer firefighter, stated simply:

> *"We should all be willing to help each other."*

Participant 11, a physician, stated:

> *"It's what the government should be doing, right? That's why we have a government, to protect and serve our people, right?"*

However, others, such as P24, P9, and P15, were skeptical of the responsibilities of taxpayers to "hemorrhage money" (in the words of P15) if programs do not meet a specific set of moral or financial criteria.

Belief in the security-based or financial-based urgency of addressing SUD is difficult to consistently identify, as concerns regarding financial offsets are seldom mentioned by non-experts, and concerns regarding the security of others are often expressed similarly to concerns regarding the health of the substance user. In this study, only six participants were conclusively coded as exhibiting or not exhibiting this factor. For example, T2 asserted regarding those with SUD:

> *"They have opioid use disorder, they lose work time and you know, cost the system money to take care of them and leads to crime because people are trying to support their habits, leads to accidents, and if you can, you know, on a purely financial point of view, it makes sense to do everything you can to get people better."*

While the BSFU and BMRG factors are difficult to delineate given their similarity and the apparent infrequency with which BSFU explicitly manifests, they are nevertheless distinct components of an individual's belief system. They should therefore be regarded as separate factors contributing to support or opposition toward publicly funded SUD treatment.

4.5 Rural social and logistical factors

As previously mentioned, the initial review of participants' discussion of rurality revealed two broad categories of "**social impacts**" and "**material impacts**". Interview pattern analysis suggests that the most relevant social impacts of rurality can be generally characterized as **labeling** (i.e., the likelihood that the community attaches certain social labels to an individual and thereby impacts their outcomes), **social ties** (i.e., the likelihood that community members have strong or weak interpersonal connections), and **resiliency narratives** (i.e., a set of narratives re-enforcing the image of an ideal resident as one who operates independent of community support). The most commonly mentioned material impacts of rurality were generally divisible into the categories of **healthcare access** (i.e., transportation, facility capacity, or quality of care) and **socioeconomic issues** (i.e., general socioeconomic barriers perpetuated in whole or in part by rurality). Given a lack of socioeconomic and healthcare-access data collection in this study, mentions of the last two factors as connected to rurality cannot be interpreted as actually indicating that rurality has caused a disadvantage—rather, mentions of socioeconomic or healthcare access dynamics can be interpreted as indicating a *perception* of such disadvantage.

In this context, **"labeling"** refers to notable adjustments in the propensity of individuals to assign and enforce social classifications based upon behavior or perceived characteristics in rural areas. Many individuals in rural communities view persistent labeling as a negative aspect of social life, which is enabled by rurality (e.g., Participants 5, 10, 3, 7, and 1); however, others may view rurality as enabling labels that can increase community understanding and acceptance (e.g., Participants 3 and 20).

"Resiliency narratives" refers to community narratives which re-enforce the image of an "ideal resident" as one who operates independent of community support. This was a particularly consistent aspect of social life as identified by residents of Kentucky and Montana (e.g., Participants 21, 14, 16, 22, 25, and 13). Descriptions of resiliency narratives are largely negative; individuals may frequently interpret these narratives as harmful to community mental health support networks. However, some residents of rural areas (e.g., Participant 24) may be appreciative of their community's predisposition to, as P24 described, "hold personal responsibility."

"Social ties" refer to notable adjustments to the prevalence of strong interpersonal connections. As in the case of resiliency narratives, several participants (e.g., Participants 14, 21, 16, 10, 17, 18, and 7) identify a lack of social ties as a negative result of rurality. However, some participants (e.g., Participants 8, 22, 21, 3, and 12) regarded differing social ties (either in the form of privacy or increased community interaction) as positive aspects of rural life.

"Healthcare access" refers to notable changes to the level of healthcare access in a given community specifically connected to rurality. While it was not always mentioned, several participants (e.g., Participants 16, 2, 7, 21, 8, 4, 19, 1, 3, 6, 11, and 5) who discussed healthcare access in the context of rurality described diminished access. **"Socioeconomic factors"** codes refer to notable changes to socioeconomic wellbeing in a given community specifically connected to rurality. Many rural community members (e.g., Participants 10, 14, 16, 7, 2) identify negative socioeconomic impacts of rural life.

5. Discussion

This study's findings suggest significant differences in association with MAT support between factors that might otherwise appear highly similar to each other. It is important to note that, due to the small sample size of this study, it is not possible to draw firm conclusions regarding the relative or absolute importance of any of the eight aforementioned factors in generating support for MAT and MAT funding. However, the fact that these eight factors emerged repeatedly as differentiated and uniquely impactful aspects of MAT support suggests that they should be studied in future research and treated in MAT-related messaging campaigns as distinct. While existing literature has explored varying levels of stigma toward MAT among rural and non-rural communities, further efforts to delineate the specific attitudes contributing to support for MAT have been scarce. This study adds to previous dialogues surrounding the social factors generating MAT support by proposing a set of defined beliefs that may play a role in the differential impacts and prevalence of stigma discussed in prior literature.

The findings regarding the critical differences between empathy-related and scientific-related beliefs lend nuance to Franz et al.'s finding of higher levels of physician stigma in rural areas.[25] Factors of rural social life, such as community ties and resiliency narratives, could contribute to different empathy-related attitudes toward SUD among physicians in rural areas, independent of those physicians' heightened trust in modern medicine and heightened awareness of scientific models for addiction. Critically, the identification of four important science-related belief factors and the relevant factor of rural social life builds upon Ashworth et al.'s finding that stigma intervention strategy effectiveness likely differs across rurality (particularly stigma interventions involving scientific explanations).[26] Such differential efficacy among rural populations could be generated by the impacts of rural social life on the four science-related belief factors.

Personal empathy and empathetic disposition toward users repeatedly emerged as differentiated aspects of the belief framework generating support for MAT. Interview results and analysis suggested that personal empathy could be a more important variable in determining support for MAT than empathetic disposition. If this is indeed true, such a causality could be attributed to the notion that disposition (i.e., attitudes in everyday life and willingness to accept those with SUD into public spaces) represents a manifestation of personal philosophical beliefs that is clouded by social and political interpretations. For example, an individual's personal stigma when measured via the survey adapted from Kennedy-Hendricks et al. could be misidentified, given widely varying interpretations of statements such as "I would be willing to accept that an addict has married into my family."[20] However, "personal empathy" (i.e., humanization of those with SUD in abstract conceptualization of their struggles, belief that those with SUD deserve compassion, and sympathy for the struggles of those with SUD) directly represents the core philosophical attitudes that could contribute to an individual's interpretation of (and support for) MAT. Such a distinction is often muddled by the overlap between personal empathy and empathetic dispositions. In a research context, differentiating between these two factors outside of an interview would likely prove difficult; however, in measuring individual empathy in the context of anti-SUD stigma, future research should nevertheless account for individual discrepancies between these two factors when possible. Moreover, messaging campaigns targeted toward increasing empathy toward substance users to increase support for science-backed recovery policies should consider prioritizing messaging tactics directed at personal empathy, whereas those targeted toward decreasing stigmatization in everyday interactions with users should consider prioritizing messaging tactics directed at empathetic disposition.

The distinction between trust in medical science and trust in medical institutions is critical for developing a more robust understanding of the personal attitudes contributing to MAT support. Trust in medical science appeared to function as a baseline determinant of an individual's acceptance of medication as a viable method of addressing SUD. In contrast, varying trust in medical institutions appeared to be most influential when distrust acts as a "brake" on individuals' support for MAT, frequently generating situations of "conditional support" wherein participants were unwilling to fully embrace the treatment given concerns about the efficacy of the system responsible for its administration. Future research should examine the differential impacts of these two factors in the context of support for MAT and support for social services. Future research should also examine trust in medical institutions in an effort to further differentiate between the impacts of a lack of trust in system *capacity* and a lack of trust in system *motives*. While these two factors were included under the umbrella of "trust in medical institutions," their implications could be distinct.

The notion that SUD's initial cause in an individual should not be attributed to a personal failure or moral inferiority is philosophically similar to the notion that the continuation of SUD in an individual should not be attributed to a personal failure or lack of discipline. However, while these two beliefs frequently overlapped in interviews, several participants displayed a tendency to differentiate between the factors *causing* and the factors *perpetuating* addiction. Belief in the notion that addiction is perpetuated by biochemical changes could be more influential in determining support for MAT, as MAT notably targets these ongoing biochemical changes. In contrast, beliefs regarding the cause of addiction could be more influential in determining an individual's general compassion toward users, as these beliefs often lead to assessments of the "worthiness" of users. Messaging campaigns directed toward increasing public awareness of the medical model of addiction and the biochemical or sociological challenges facing substance users should take steps to address these factors as separate and differentially influential. Support for MAT may be more easily generated via messages that do not focus on the original cause of SUD, but rather on the biochemical changes perpetuating its influence. Conversely, individual empathy for users and willingness to show compassion toward those with SUD may be more accurately addressed via the development of messaging campaigns which communicate the myriad factors that can initially lead an individual to develop SUD. Future research should seek to develop a more accurate and specific set of criteria with which to distinguish between these factors.

As belief in economic/security urgency appeared infrequently in interviews, it is difficult to draw conclusions regarding the specific manner in which it can influence support for public MAT funding. This factor could plausibly compel an individual to support medical treatment for SUD; however, it could also plausibly compel an individual to support highly punitive anti-user policies. Future research should seek to examine the manner in which this factor translates into support for both punitive and health-centered approaches. Interview results suggested that belief in the moral responsibility of the government to help those with SUD is critical in generating support for public funding for MAT. However, many individuals identified a high prevalence of "not in my backyard" ("NIMBY") attitudes, suggesting that, while an individual may profess a belief in government support for SUD treatment, such a belief may not translate into support for tangible local funding initiatives. Future research should seek to understand the manner in which NIMBY attitudes can impede funding initiatives that would normally receive more support when framed as hypothetical proposals removed from direct impacts on local communities. Initiatives directed at increasing support for government-funded MAT expansion should prioritize both dispelling misconceptions regarding the cost and local impact of MAT facilities and presenting arguments that appeal to beliefs regarding governments' socioeconomic responsibilities.

Both the social and the material impacts of rurality identified in this study could impact support for MAT in rural communities. However, given that this study did not examine socioeconomic or healthcare access data, it is better suited to assess social factors. The identified social impacts of rurality hold myriad hypothetical impacts for the prevalence of each of the eight aforementioned factors. This study did not include sufficient data to accurately quantify these impacts beyond speculation. **Variations in social ties** could plausibly influence personal empathy and empathetic disposition toward users, as increased interpersonal understanding could compel participants to view those with SUD through a more humanized lens. **Resiliency narratives** could plausibly influence trust in medical institutions. As P25 stated, many in rural communities believe that "you only go in [to the hospital] if you're being born or dying. And sometimes not even for either of those." Decreased exposure and dependence upon the medical system could cause diminished trust in medical institutions to administer MAT. Moreover, these narratives could influence personal empathy in a manner similar to variations in social ties, decreasing an individual's inclination to interact with and understand another resident struggling with SUD. Resiliency narratives could also plausibly impact belief in the moral responsibility of government to help those with SUD by encouraging an attitude that one should "pull themselves up by their bootstraps" instead of depending on government support. **Changes to the practice of community labeling** could plausibly impact belief in addiction as caused by external or biological factors, as individuals with SUD could be labeled as "deviant" in a manner that prevents further understanding of their struggles. Moreover, community labeling could impact personal empathy by preventing a disposition of compassion toward those who have been previously labeled as unworthy of care. Future research should seek to more accurately define and measure the impact of each of these social factors on support for public policies aimed at assisting those with SUD.

This study had several notable limitations. The sample population was sufficiently large and geographically diverse to draw conclusions regarding the common factors contributing to MAT support, but was far too small and homogeneous to draw conclusions regarding population-wide prevalence, relative or absolute importance of each belief factor, or concrete impacts of rurality. Moreover, the study did not inquire regarding participants' political affiliations; however, party affiliation has been shown to be a critical determinant of attitudes toward SUD treatment.[18,28] This metric was excluded, given that it is a subjective self-applied label, which does not directly reflect specific components of a given individual's underlying belief framework. However, the inclusion of party affiliation would likely have been helpful in interview coding and the evaluation of survey answers.

Another important limitation lies in the study's low diversity in race, ethnicity, and sexual orientation. Given time constraints and the prevailing demographic distributions of the included communities, such a limitation was logistically necessary. However, such a lack of diversity meant that the analysis neglected relevant issues such as the unique overlap between community stigma toward minority groups and community stigma toward substance users. The study's lack of a mechanism by which to interpret the views from members of a diverse range of ethnic populations leaves many questions regarding how such issues may be interpreted outside of a cis-hetero or white racial worldview.

Finally, this study was limited in the range of rural communities included, and lacked a method of reliably distinguishing whether certain attitudes were more prevalent in each community. This is a particularly relevant limitation in the context of political affiliation, as support for MAT could vary widely on a county basis depending upon the popular political consensus of a given area.

Several promising avenues for further research could provide tangible benefits for both community organizers and those studying the politics of public health. One such avenue is robust statistical analysis measuring the relationship between each aforementioned factor and support for MAT. For example, a survey-based study with a large sample size, spanning and delineating between rural and non-rural areas, would enable more reliable statistical conclusions regarding the influence of each factor of belief in the general population. Such a study could build upon the work of this research (which establishes and examines the influence of the eight framework components contributing to support for MAT) by measuring MAT support, MAT funding support, and prevalence of each of the eight underlying factors via individual surveys. The opportunity to draw conclusions regarding the magnitude of importance of each belief or attitude contributing to MAT support would be invaluable for efforts to build community consensus predicated upon compassionate, evidence-based SUD policies. Research examining the efficacy of pro-MAT messaging campaigns focused upon each of these factors would similarly enable a deeper understanding of community responses to scientific and political communications discussing SUD. Finally, research specifically directed toward understanding the political impacts of the aforementioned three differences in social conditions and two differences in material conditions generated by rurality would be invaluable for both researchers and community organizers specializing in SUD treatment in rural areas.

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Appendix I. Survey Questions

(Choose from "Strongly Disagree; Disagree; Neither agree nor disagree; Agree; and Strongly Agree" for each statement).

- *I would be willing to work closely with a person addicted to drugs.*
- *I would be willing to accept that a person addicted to drugs has married into my family.*
- *People addicted to drugs are more dangerous than the general population.*
- *Employers should be allowed to deny employment to people addicted to drugs.*
- *Landlords should be allowed to deny housing to people addicted to drugs.*
- *Some people lack the self-discipline to use medications without becoming addicted.*
- *Individuals addicted to drugs are to blame for the problem.*
- *Substance use disorder is a chronic, relapsing brain disorder, rather than a moral failing or a lack of willpower.*

Appendix II. Interview Guide

Semi-structured interviews generally included, but were not limited to, the following questions:

- *Stigma is a word meaning "the dehumanization (or, in our context, partial dehumanization) of an individual based on their social identity or participation in a negative activity, such as substance use." What is your perception of stigma against opioid users in your community?*
- *Medication assisted treatment is described by the American Addiction Centers as "combining regularly ingested medications to decrease withdrawal with behavioral treatment that is tailored to a patient's unique needs. In its various forms, MAT may effectively minimize cravings, block some of the rewarding properties of certain substances, and ultimately decrease drinking and continued substance use behavior." MAT medications are often, but not always, classified as opioids. What is your level of support for MAT as a treatment plan?*
- *What is your community's level of support for community members entering MAT?*
- *What is your level of support for community members entering MAT?*
- *If given the choice between both options, should community members join MAT programs or abstinence-only programs such as Alcoholics Anonymous or Narcotics Anonymous?*
- *What is your level of support for expanded MAT access?*
- *Some proposals for expanding MAT involve the usage of public government funds to provide access. What is your level of support for public funding to expand MAT access?*
- *Some proposals for expanding MAT involve the usage of public government funds to implement mobile vans (MNTPs) which provide access to MAT medications. What would be your level of support for this funding to expand MAT access?*
- *Are there any policies which you prefer to MAT for public use?*

Appendix III. Factor Coding Guide

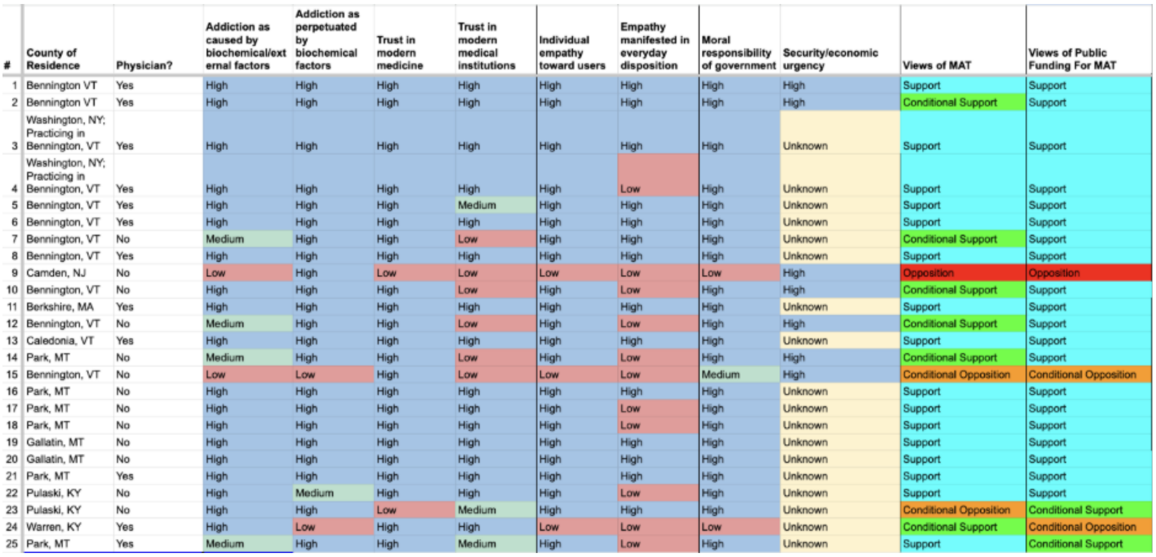
- High (Factor)
  - Matches a portion, or the entirety, of the attached factor definition in a manner plausibly contributing to support for MAT/MAT public funding.
- Medium (Factor)
  - Matches or notably diverges from a portion, or the entirety, of the attached factor definition in a manner that neither contributes nor plausibly detracts from support for MAT/MAT public funding.
- Low (Factor)
  - Notably diverges from a portion, or the entirety, of the attached factor definition in a manner plausibly detracting from support for MAT/MAT public funding.
- (Factor) as lacking in others
  - Indicates that other community members notably diverge from a portion, or the entirety, of the attached factor definition.
- (Factor) as present in others
  - Indicates that other community members match a portion, or the entirety, of the attached factor definition.

Appendix IV. Support Level Coding Guide

- MAT Support Level
  - Refers to an individual's level of support for Medication Assisted Treatment as a plan for those struggling with opioid use disorder and general substance use disorder, as presented in the following definition:
    - *Medication assisted treatment is described by the American Addiction Centers as "combining regularly ingested medications to decrease withdrawal with behavioral treatment that is tailored to a patient's unique needs. In its various forms, MAT may effectively minimize cravings, block some of the rewarding properties of certain substances, and ultimately decrease drinking and continued substance use behavior." MAT medications are often, but not always, classified as opioids.*
- Codes:
  - Treatment Support
    - The clear expression of support for MAT.
  - Treatment Conditional Support
    - Beliefs generally characterized as support for MAT, expressed with at least one notable condition for that support.
  - Treatment Conditional Opposition

        - Beliefs generally characterized as opposition to MAT, expressed with at least one notable condition under which support would be warranted.
    - Treatment Opposition
        - The clear expression of opposition to MAT.
- Funding Support Level
    - Refers to an individual's beliefs regarding the use of government (i.e. taxpayer) funds to implement or augment access to MAT, as defined above.
- Codes:
    - Funding Support
        - The clear expression of support for taxpayer funding of MAT programs.
    - Funding Conditional Support
        - Beliefs generally characterized as support for taxpayer funding of MAT programs, expressed with at least one notable condition for that support.
    - Funding Conditional Opposition
        - Beliefs generally characterized as opposition to taxpayer funding of MAT programs, expressed with at least one notable condition under which support would be warranted.
    - Funding Opposition
        - The clear expression of opposition to taxpayer funding of MAT programs.

Appendix V. Participant Response Breakdown



#	County of Residence	Physician?	Addiction as caused by biochemical/external factors	Addiction as perpetuated by biochemical factors	Trust in modern medicine	Trust in modern medical institutions	Individual empathy toward users	Empathy manifested in everyday disposition	Moral responsibility of government	Security/economic urgency	Views of MAT	Views of Public Funding For MAT
1	Bennington VT	Yes	High	High	High	High	High	High	High	High	Support	Support
2	Bennington VT	Yes	High	High	High	High	High	High	High	High	Conditional Support	Support
3	Washington, NY; Practicing in Bennington, VT	Yes	High	High	High	High	High	High	High	Unknown	Support	Support
4	Washington, NY; Practicing in Bennington, VT	Yes	High	High	High	High	High	Low	High	Unknown	Support	Support
5	Bennington, VT	Yes	High	High	High	Medium	High	High	High	Unknown	Support	Support
6	Bennington, VT	Yes	High	High	High	High	High	High	High	Unknown	Support	Support
7	Bennington, VT	No	Medium	High	High	Low	High	High	High	Unknown	Conditional Support	Support
8	Bennington, VT	Yes	High	High	High	High	High	High	High	Unknown	Support	Support
9	Camden, NJ	No	Low	High	Low	Low	Low	Low	Low	High	Opposition	Opposition
10	Bennington, VT	No	High	High	High	Low	High	Low	High	High	Conditional Support	Support
11	Berkshire, MA	Yes	High	High	High	High	High	High	High	Unknown	Support	Support
12	Bennington, VT	No	Medium	High	High	Low	High	Low	High	High	Conditional Support	Support
13	Caledonia, VT	Yes	High	High	High	High	High	High	High	Unknown	Support	Support
14	Park, MT	No	Medium	High	High	Low	High	Low	High	High	Conditional Support	Support
15	Bennington, VT	No	Low	Low	High	Low	Low	Low	Medium	High	Conditional Opposition	Conditional Opposition
16	Park, MT	No	High	High	High	High	High	High	High	Unknown	Support	Support
17	Park, MT	No	High	High	High	High	High	Low	High	Unknown	Support	Support
18	Park, MT	No	High	High	High	High	High	Low	High	Unknown	Support	Support
19	Gallatin, MT	No	High	High	High	High	High	High	High	Unknown	Support	Support
20	Gallatin, MT	No	High	High	High	High	High	High	High	Unknown	Support	Support
21	Park, MT	Yes	High	High	High	High	High	High	High	Unknown	Support	Support
22	Pulaski, KY	No	High	Medium	High	High	High	Low	High	Unknown	Support	Support
23	Pulaski, KY	No	High	High	Low	Medium	High	High	High	Unknown	Conditional Opposition	Conditional Support
24	Warren, KY	Yes	High	Low	High	High	Low	Low	Low	Unknown	Conditional Support	Conditional Opposition
25	Park, MT	Yes	Medium	High	High	Medium	High	Low	High	Unknown	Support	Conditional Support

Appendix VI. Belief Factors

Category: Empathy

Factor: Personal Empathy

Refers to an individual's expression of the following general set of beliefs and attitudes:

- Humanization of those with SUD in abstract conceptualization of their struggles.
- Belief that those with SUD deserve compassion.
- Empathization with the struggles of those with SUD in the context of biochemical and socioeconomic challenges to recovery.

Factor: Empathetic Disposition

Refers to an individual's expression of the following general set of beliefs and attitudes:

- Willingness to engage with substance users as one would engage with non-substance users.
- Willingness to protect substance users' rights to widely accessible spaces and services.

Category: Scientific Beliefs

Sub-Category: Beliefs regarding scientific explanations

Belief in Addiction as Caused by External/Biochemical Factors

Refers to an individual's expression of the following general set of beliefs and attitudes:

- Rather than representing a moral failure, spiritual defect, or lack of discipline, SUD frequently originates as the byproduct of biochemical disposition.
- Rather than representing a moral failure, spiritual defect, or lack of discipline, SUD frequently originates as the byproduct of exposure to adverse social or psychological circumstances.
- Rather than representing a moral failure, spiritual defect, or lack of discipline, SUD frequently originates as the byproduct of unjust exposure to medications.

Belief in Addiction as Perpetuated by External/Biochemical Factors

Refers to an individual's expression of the following general set of beliefs and attitudes:

- Rather than being perpetuated by continuous moral failure, spiritual defect, or lack of discipline, SUD frequently continues as the result of changes to neurochemical processes.
- Rather than being perpetuated by continuous moral failure, spiritual defect, or lack of discipline, SUD frequently continues as the result of social or socio-economic barriers to recovery.

Sub-Category: Beliefs regarding modern medicine

Trust in Medical Science

Refers to an individual's expression of the following general set of beliefs and attitudes:

- Modern medicines are reliable and effective methods of addressing complex issues, including psychological issues.
- Modern medical knowledge and research provides effective methods of addressing complex issues, including psychological issues.

Trust in Medical Institutions

Refers to an individual's expression of the following general set of beliefs and attitudes:

- Modern medical institutions are reliable and effective systems for addressing complex issues, including psychological issues.
- Modern medical institutions generally operate for the public benefit, and can be considered trustworthy.
- Modern medical institutions do not operate with deceit.
- Modern medical institutions have sufficient resources and capacity to effectively address complex issues, including psychological issues.

Category: Political Beliefs

Belief in the Moral Responsibility of Government

Refers to an individual's expression of the following general set of beliefs and attitudes:

- The government and taxpayers have a moral responsibility to contribute resources to assistance for those struggling with SUD in their recovery.
- Those with SUD deserve support from the government, independent of the origins of their SUD.

Belief in Security/Financial Urgency

Refers to an individual's expression of the following general set of beliefs and attitudes:

- Given concerns for public safety, addressing SUD represents an urgent security concern.
- Given concerns for the economic health of communities, addressing SUD represents an urgent financial concern.

About the Authors

Shreya Kalra

Shreya Kalra received her B.S. from Georgetown University's School of Health (Class of 2025), where she majored in Healthcare Management and Policy and pursued the pre-medical track. She will begin medical school in July 2026, with the goal of pursuing a career that bridges clinical practice and research that centers healthcare policy to advance equitable healthcare delivery.

Chase Dobson

Chase Dobson is a junior at Georgetown University's College of Arts and Sciences, majoring in Government and Sociology. His interests include the political and social dynamics of policies oriented toward addressing the harms of substance use, as well as the sociological dimensions of political rhetoric which targets vulnerable populations. He is excited to pursue a law degree after graduating and to explore opportunities relating to the expansion of equitable substance use and healthcare policy.

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