

**Title:** Navigating mental health narratives: establishing a priority framework in medical education through natural language processing

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**Introduction:** The US mental health system has changed drastically since the mid-nineteenth century. Since then, the system has been deinstitutionalized which has left many states unequipped to care for patients with mental health illness. Patients, families, friends and loved ones of the mental health community have suffered the consequences. Currently, people with mental illnesses and their family members face innumerable burdens to accessing mental health care. There is a need to investigate unmet needs of family members of patients who are a part of the mental health community. Their insight on how the mental health system and medical education can be improved upon are valuable areas for improvement.

**Specific Aims:** This community-based study sought to: 1) Understand the relationship between previously identified barriers to mental health care; 2) Leverage Natural Language Processing to analyze and visualize the role of different factors contributing to mental health care; 3) Establish a priority framework for mental health care to effectively guide and develop future solutions executed by our organization.

**Methods:** From September 2019 through March 2020, 69 out of 149 online public testimonies were selected from the Colorado Department of Human Services (CDHS) Behavioral Health Task Force (BHTF), all from the Denver Metro Area. From the available data, this included Denver, Adams, Douglas, and Jefferson County. The remaining testimonies were excluded as those were from outside the Denver Metro Area, and thus outside our scope of study. These testimonies were analyzed using Natural Language Processing.

**Results and conclusions:** Analyzing public testimonies is a powerful tool to understand first-hand experiences and to recognize barriers that can be mitigated by medical education. Through Natural Language Processing, we established a priority framework that should be addressed during medical education. This tool allowed us to expand on the results from our qualitative analysis that identified the four following themes: (1) structural barriers, (2) equity of access, (3) population-specific needs, and (4) training and education gaps. The connections and relationships between these themes and barriers were extracted through Natural Language Processing. A priority framework was created as follows: High Priority: community, family, accessing care; Medium Priority: treatment, primary care, substance use; Low Priority: insurance, Medicaid, schools, financial. While all these gaps and barriers in care should be addressed, this priority framework helps guide our program in the right direction.