Improving patient flow in the UVA Emergency Department: Understanding efficiency, throughput, and the quality of patient experience

Analyzing the impacts of Selective Serotonin Reuptake Inhibitors (SSRIs) on Women

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On my honor as a University student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments.

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Introduction:

In the complex environments of healthcare delivery, challenges such as operational inefficiencies and discrepancies in treatment outcomes across different demographic groups often compromise the quality of care. This prospectus outlines two distinct yet interconnected projects: a technical project aimed at improving patient flow in the University of Virginia (UVA) Emergency Department (ED), and a Science, Technology, and Society (STS) research project investigating the impacts of Selective Serotonin Reuptake Inhibitors (SSRIs) on women.

The Emergency Department at UVA, like many across the nation, faces significant challenges related to overcrowding, leading to prolonged waiting times and suboptimal patient flow. This project proposes a systemic overhaul of the ED's patient management processes to enhance operational efficiency and patient care quality through questioning: How can the patient flow in the UVA ED be optimized to reduce waiting times and improve the overall quality of emergency care?

My STS project explores a significant concern in psychiatric medication, specifically the differential impacts of SSRIs on women compared to men. Despite the high prescription rates of SSRIs among women, there is insufficient research focused on how these drugs affect women differently, which could have significant implications for both efficacy and safety. My research will focus on how SSRIs affect women differently across various stages of their lives. Through this work, I will seek to uncover potential biases in medical research and healthcare delivery, advocating for a more tailored approach to treatment that considers biological and gender-specific factors, thus promoting better health outcomes and equity in healthcare.

Both projects are united by a common theme of optimizing healthcare delivery and tailoring treatment to meet specific needs. While the technical project focuses on systemic and operational improvements in emergency care, the STS project addresses the need for specificity and equity in pharmacological treatments for women. Each project informs the other by highlighting the importance of context-specific and patient-centered approaches in healthcare. My prospectus will discuss background and literature reviews, methodology, expected impact, and timelines and evaluation for both simultaneous projects and is designed to pave the way for significant advancements in healthcare practices by addressing systemic and pharmacological challenges.

Technical Project: Improving Patient Flow in the UVA Emergency Department

Emergency Departments (EDs) are crucial for delivering acute healthcare services but often face significant challenges such as overcrowding, prolonged waiting times, and suboptimal patient flow (Asplin et al., 2003). At the University of Virginia Medical Center, these issues are pronounced, affecting patient care quality and satisfaction. My team's technical project proposes a comprehensive overhaul of the patient flow from arrival to discharge, aimed at addressing these inefficiencies through innovative, systemic solutions. Previous studies and efforts globally have highlighted the persistence of crowding and inefficiencies in EDs, with various interventions attempting to address these issues but often lacking a unified strategy (Sun et al., 2013). Our project identifies and fills this gap by focusing on data-driven management, performance accountability, and hospital-wide coordinated strategies to improve operational effectiveness and patient care delivery.

The primary objective of this project is to redesign the UVA ED's patient flow based on the principles of queuing theory and task analysis. We aim to develop a continuous, forward movement system for patients by optimizing the provider-in-triage model and focusing on the streamlining of patients with symptoms that are manageable without ED intervention. These changes are intended to enhance the overall patient experience by significantly reducing wait times and improving communication within the ED.

Our approach involves a comprehensive analysis using statistical methods, real-time observation, and data analytics to identify current bottlenecks and inefficiencies. Ultimately, we will utilize advanced software tools for modeling simulations and develop predictive analyses to guide our redesign efforts effectively. This project is a collaborative effort with the UVA Emergency Department's Operations and Systems Engineering Department, ensuring that adaptations are refined based on real-time feedback and emerging data.

The current patient flow begins with triaging patients in the waiting room, where vitals are taken, and EKGs are received in under five minutes. Patients then move through a streamlined provider-in-triage system before being transferred to specific pods for further assessment. We hope to implement changes via a new triage model that will reduce the redundancy of patient-provider interactions and decreases the waiting time for admission or discharge. Program evaluation methods will assess the impact of these changes on patient throughput and satisfaction. By employing a data-driven decision-making process, we expect to see quantifiable improvements in hospital resource utilization and overall patient care quality.

The redesign of the UVA ED is expected to significantly improve operational effectiveness and transform patient care delivery, potentially serving as a scalable model for other hospitals experiencing similar challenges. Through executive leadership involvement and a focus on performance accountability, this project represents a step toward systemic improvement in emergency healthcare services.

STS Research Paper: Understanding the Impacts of SSRIs on Women

Selective Serotonin Reuptake Inhibitors (SSRIs) are widely prescribed for treating depression and anxiety disorders, with a noted prevalence among women. While the side effects for this technology are well documented, there are little to no distinctions between how men and women process these drugs. Andrea H. Weinberger, Sherry A. McKee, and Carolyn M. Mazure cite in their paper that less than 1% of reviewed trials planned to analyze results by gender (Weinberger et al., 2010, p. 1727). The "Scientific American Mind" highlights in its July/August 2014 issue that psychotropic drugs, including SSRIs, affect men and women differently due to biological differences such as hormone levels, body composition, and metabolic rates (Jacobson, 2014, p. 15). It specifically mentions that women are almost twice as likely to be prescribed psychotropic medication as men and are more likely to experience side effects. This evident failure to adequately analyze data by gender is not only alarming but also calls into question the efficacy and safety of medications such as SSRIs being administered to half the population. Such lack of documentation for women's reactions to these drugs has led me to consider: How do SSRIs affect women at various ages?

At the heart of exploring how these drugs impact women across various life stages are several pivotal groups – each playing a unique role in unraveling the intricate tapestry of gender-specific responses to these widely prescribed medications. To begin, those who identify as women using prescription medications stand at the forefront of people for whom my question concerns. By directly engaging with current female users of SSRIs, I hope to gain valuable qualitative insights on their subjective experiences with these medications, which can often go unreported in traditional studies. The researchers and academics who have created the script that healthcare providers follow is vital to gathering the foundational understanding of how and why SSRIs might affect women differently across the lifespan. To advocate for and support the women impacted in unexpected ways, my research aims to influence the level of transparency prescribers provide their patients when issuing these medications for extended periods of time.

To uncover the nuanced experiences of women with SSRIs and the overarching policies that govern their prescription, I will employ a combination of ethnographic techniques and policy analysis, methods uniquely suited to revealing both the micro-level impacts and macro-level structures in medical practice. Ethnography is a qualitative method for collecting data often used in the social and behavioral sciences. I plan to engage in discussions with women who are currently using SSRIs to provide real-time context to their experiences. Furthermore, I plan to utilize online discussion sites, such as Reddit, to uncover personal narratives about women's experiences with these medications. I believe the relative anonymity of online forums may encourage openness and honest among participants who might not feel comfortable sharing sensitive health information in more identifiable settings. Of course, it is challenging to verify the authentication of information shared online, but I believe the benefits of this approach will outweigh the potential risks. In order to understand the regulatory and institutional frameworks that govern the distribution and monitoring of SSRIs, policy analysis will be employed as a research method. I plan to review policies related to the marketing of SSRIs, including policies at the national health authority level and guidelines in psychiatric associations to better understand the distribution of these drugs. I also plan to examine the content of these policies to understand what guidelines exist regarding SSRIs in women. I will look at statistical data and health outcomes to evaluate whether the policies effectively address the needs of women and find gaps in policy that may contribute to oversight. This approach of blending the intimate perspectives gathered through ethnography with the structural insights from policy analysis, promises to illuminate not only how SSRIs affect women but also how our healthcare system can evolve to better support their health and well-being.

My project will be guided by the STS frameworks of feminist critique and public policy. Feminist critique examines how gender, and particularly the experiences of women, is intertwined with technology and science. Donna Haraway, a feminist scholar and cultural critic, argues that all knowledge is "situated" within specific cultural, political, and social contexts (Haraway, 1988, p. 581). In the context of my research, I plan to emphasize that the effects of SSRIs on women cannot be generalized across all populations without considering the diverse circumstances affecting different groups of women. This may include analyzing how age, as a social determinant of health, influences how women experience and respond to SSRIs. Haraway also suggests that a "partial perspective" is more objective than the pretense of a "view from above, from nowhere, from simplicity" (Haraway, 1988, p. 589). In my study, I will acknowledge my own partial perspectives as a researcher as well as those of the women from whom experiences I am studying. This will entail being transparent about the limitations and specificities related to the first-hand accounts I am gathering, and actively seeking out diverse voices to round out my research. In terms of public policy, political theorist Langdon Winner argues in his paper "Do Artifacts Have Politics" that certain technologies and their implementations can inherently bring about specific social and political structures – either through their required operational conditions or through their compatibility with certain types of social arrangements. In his own words, "in controversies about technology and society, there is no idea more provocative than the notion that technical things have political qualities" (Winner, 1980, p. 121). By weaving together feminist critique with public policy analysis, my research aims to reveal not just the biomedical impacts of SSRIs, but also the broader socio-political echo they generate across women’s lives. This approach will help uncover the silent narratives embedded within our healthcare practices and technologies and challenge us to consider the deeper implication of what it means to medicate have the population.

The initial phase of my research, spanning approximately one to two months, has largely been completed and is primarily focused on preparation and planning. This has included compiling and reviewing existing literature on SSRIs and gender differences in pharmacology, further developing my theoretical frameworks, and pinpointing what I want the scope of my thesis to entail. The subsequent data collection phases, lasting an additional one to two months and which I have now started, involves homing in on the first-hand experiences from women prescribed SSRIs, whether that be via interviews or online chat forums. I will plan on spending a few weeks analyzing qualitative data I can gather and reviewing current policies and guidelines regarding the prescription and management of SSRIs for gender-specific considerations. Finally, all observations will be culminated in a written paper format which I will submit come April 2025. This timeline I find to be structure to ensure a thorough examination of data to support my thesis while accommodating academic schedules.

Key Texts:

The paper "Sex differences in the psychopharmacological treatment of depression" by John J. Sramek, Michael F. Murphy, and Neal R. Cutler provides a comprehensive examination of how sex differences influence the effectiveness of antidepressants, specifically focusing on women across different life stages. The paper delves into physiological and biochemical differences, variations in depression pathogenesis, the impact of hormonal changes, and the clinical implication of these factors. This paper is crucial for my STS project because as it provides a strong scientific foundation for understanding the biological underpinnings of sex differences in antidepressant response.

Prozac Nation by Elizabeth Wurtzel is a memoir that traces the author's life from early childhood through young adulthood, documenting her struggles with depression. Wurtzel offers a raw, immersive look into how depression impacts her life and relationships. The memoir begins with Wurtzel expressing the depths of her depression and the various medications she has taken, including SSRIs, hinting at their inefficacy. She later discusses her experiences with Prozac, which initially provided some relief but ultimately became another complex chapter in her battle with depression. Ultimately, Wurtzel's writing suggests that depression is a deeply personal, complex experience that cannot be fully alleviated by medication alone. This memoir is particularly relevant to my project as it provides a personal account of how SSRIs affect a woman's experience with depression.

Another important research paper, "The Use of SSRIs in Depressive Disorders Specific to Women," examines the specific impact of SSRIs on women across various reproductive stages, including premenstrual dysphoric disorder (PMDD), pregnancy, postpartum, perimenopause, and menopause. The key argument of this paper is the necessity of gender-specific research in psychopharmacology, given the distinct physiological and hormonal differences between men and women that influence both the manifestation of depressive disorders and the efficacy of pharmacological treatments (Altshuler, 2002). This research aligns well with my aim to explore the gendered dimensions of healthcare and medication efficacy, highlighting the importance of considering gendered differences in treatment outcomes.

Finally, *Coming of Age on Zoloft* by Katherine Sharpe explores the experiences of young adults who have grown up taking antidepressants, particularly SSRIs like Zoloft. Sharpe examines not only how these drugs impact symptoms of depression and anxiety, but also how they influence self-identity development during formative years. She raises questions about the prescription of these drugs to young people, the challenges of diagnosing and treating mental health issues in this demographic, and the long-term impacts of starting SSRIs at a young age. Sharpe's first-hand accounts and personal narratives of young adults who have used SSRIs provides qualitative data that I can use to show how these medications affect personal identity, emotional development, and social interactions during this critical stage of life. Additionally, she discusses the cultural context of antidepressant use among young adults, which aligns with my ethnographic approach by exploring how cultural norms may influence the acceptance, stigmatization, and outcomes of SSRIs usage, particularly among women. With these texts, I aim to generate a comprehensive exploration of both the scientific underpinnings and real-world experiences that highlight the need to integrate gender-specific insights into healthcare policies and clinical practices. By doing so, I hope to ensure more effective and equitable treatment outcomes for all patients.

Conclusion:

This prospectus delineates a rigorous and multidisciplinary approach to addressing two critical issues within the realm of healthcare: the optimization of emergency department operations at the University of Virginia Medical Center and the nuanced examination of the effects of SSRIs on women. By converging on these pivotal areas, the outlined projects not only aim to enhance the efficiency and responsiveness of emergency medical care but also strive to deepen our understanding of gender-specific responses to widely prescribed psychiatric medications. Together, these projects embody a commitment to a more equitable and effective healthcare system, advocating for changes that consider both broad operational challenges and the specific needs of diverse patient groups.

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