Impact of Social Media in the Context of the Diathesis-Stress Model and the Vulnerability-Resilience Model on Successors with Schizophrenic Predisposition

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Abstract
In today's digitally connected world, social media has become a space for everyday human interaction – from routine exchanges to highly stressful encounters. There is limited understanding of how individuals with a predisposition to schizophrenia may be affected by new environmental stressors like social media. This study includes four parts: forming the resilience model for genetically predisposed participants, modeling vulnerability based on observational data, modeling vulnerability based on experimental data, and predicting risk using the Diathesis-Stress Interaction With Quasi Continuous Diathesis Model based on affected relatives. Qualitative data from these phases will increase awareness of social media's mental health impacts. Findings may influence both individuals vulnerable to schizophrenia and frequent social media users. This study examines how reducing social media exposure may lessen schizophrenia symptom severity depending on genetic predisposition. I hypothesize that reduced social media usage will correspond with lower symptom severity. Participant journals will be scored for symptom severity and analyzed using ANOVA and regression to assess significance ($p < 0.05$) and relationships with genetic risk. Even those with low predisposition may develop symptoms under prolonged digital stress. Continued research could support policies that prioritize user well-being over profit.

Introduction

Schizophrenia is defined in the DSM-V as a "psychotic disorder characterized by disturbances in cognition, emotional responsiveness, and behavior." Common symptoms include delusions, hallucinations, disorganized speech, and restricted emotional expression (Hurley, 2022). Though it affects 1 in 300 people globally, incident cases rose to 1.13 million between 1990 and 2017 (World Health Organization, 2022).

Models like the diathesis-stress and vulnerability-resilience frameworks help assess how genetic predispositions and environmental stressors, including social media, influence mental health. The diathesis-stress model (Figure 1) links genetic risk with stress exposure to explain the development of psychological disorders (Myers et al., 2024, 687). The vulnerability-resilience model (Figure 2) examines how an individual's susceptibility and adaptability at different stress levels impact symptom severity.

As social media becomes a growing source of daily stress, its psychological impact is particularly concerning. Although all people experience distress and eustress, social media users are especially prone to anxiety and depression, which can harm mental well-being (Thorisdottir et al., 2020).

Literature Review

The concept of vulnerability in schizophrenia has been studied for decades, yet little is known about whether episodes stem from biomedical or physiological causes. Researchers recognize that individuals with schizophrenia show varying degrees of vulnerability, from genetic predispositions to acquired traits (Zubin & Spring, 1977, 109). Some also assume "that all schizophrenics have . . . ever presence of vulnerability," citing genetic endowment as the root for those at risk (Ingram & Luxton, 2005, 34).

Additionally, social media use among individuals with schizophrenia may increase misinformation. In a UCLA schizophrenia treatment case, one patient became unsure if online messages targeted them or if "a neighbor was 'putting information about his life online' " (Burns, 2024). This may lead to a lasting belief based on online information.

Research Question

Therefore this raises the question: how might limiting time spent on social media decrease the severity of symptoms of those with genetic predisposition for schizophrenia?

Methodology

This cohort study consists of observational and experimental data, in which participants' social media usage will be tracked for 14 months. Participants and their guardians will consent to follow assigned social media usage limits. Social media is defined as any platform used to create, share or network. Apps with similar functions will count towards previously stated usages of social media. Successor participants will be prohibited from using drugs and alcohol to reduce confounding variables.

Participants must be age 17-30, an active social media user, and have a family member diagnosed with schizophrenia. They must also self-identify as a “successor” to that relative. The main confounding variable that will be acknowledged is the fact that all participants will have a variation of genetic predisposition, but will still share familial risk. Before conducting the first part of the experiment, participants will fill out a questionnaire describing social media stress scenarios and their coping strategies. High-stress situations directly affecting their identity (as a part of their gender, age, socioeconomic background, political beliefs) and low-stress ones indirectly related will help model the resilience column (Figure 2). Additionally, since this study is based on the results of participants, neither single-blind or double-blind will be applicable.

The first phase of the study will utilize observational data. Participants will self-report the amount of social media they usually use and log weekly journal entries for two months, reflecting on their emotions, stress, and responses to social media events. The equation *Risk* + *Response* = *Vulnerability* will allow us to control Risk (social media) and allow Response to stress (high or low) to dictate Vulnerability of mental symptoms (Moret, 2014). This response measurement will be crucial for this experiment. This qualitative observational data will act as the control group for the second phase of the study.

In the second phase, participants will be randomly assigned to groups with 0.5, 3, or 6 hours of daily social media use, based on prior findings linking screen time to internalizing symptoms (Riehm et al., 2019; DeAngelis, 2024). They will continue journaling weekly for one year. This qualitative data will be analyzed using the modified vulnerability-resilience model (Figure 4) to assess symptom severity.

To account for genetic predisposition, the schizophrenic relatives (predecessors) will complete a questionnaire on medical history, trauma, and substance use. These responses will be mapped onto the Diathesis-Stress Interaction Model (see Figure 3) to classify genetic risk levels. Predecessor stressors will be categorized and compared to schizophrenia severity. This will predict symptom expression in successors, clarifying how inherited vulnerability and online stress interact.

Qualitative data from participants’ weekly journal entries will be coded and scored for emotional distress, cognitive disorganization, and stress response severity. These scores will be compared across the three randomized social media exposure groups (0.5, 3, and 6 hours/day). To assess statistical significance of differences in symptom severity, an ANOVA test will be conducted, followed by post-hoc comparisons. A p-value threshold of < 0.05 will be used to determine significance. Correlations between genetic predisposition (based on predecessor risk

classification) and symptom outcomes will also be analyzed using linear regression to identify interaction effects between inherited vulnerability and social media stress exposure.

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Appendix

The Diathesis Stress Model

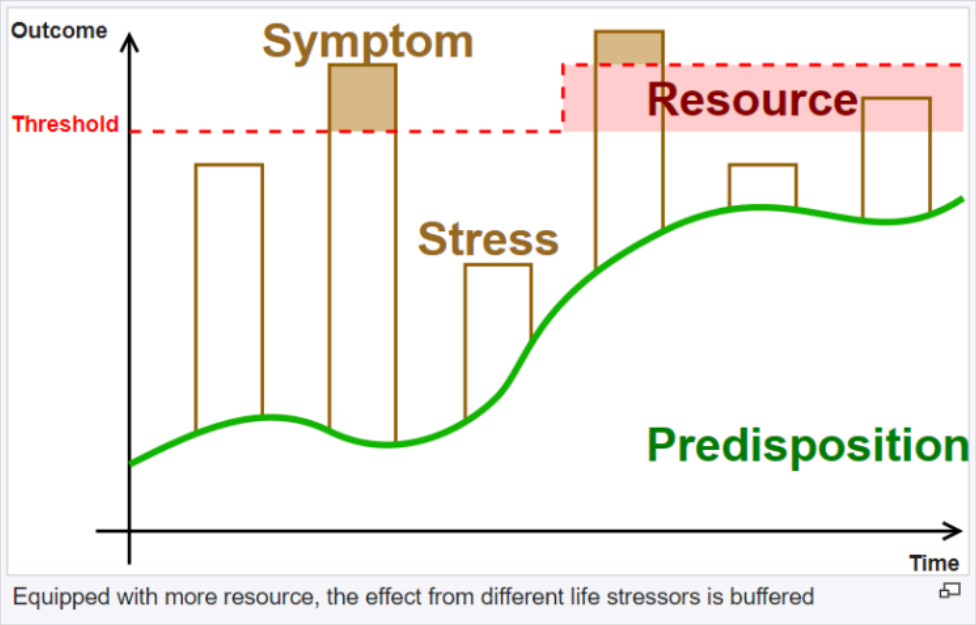

Figure 1: This model depicts that over time depending on the participant's genetic predisposition and level of environmental stress, they may cross the threshold and exhibit symptoms of the disorder. For the purpose of this study, the severity of the symptoms will be relevant and will be measured as the outcome (Mental Health Matters, 2020).

The Vulnerability-Resilience Model

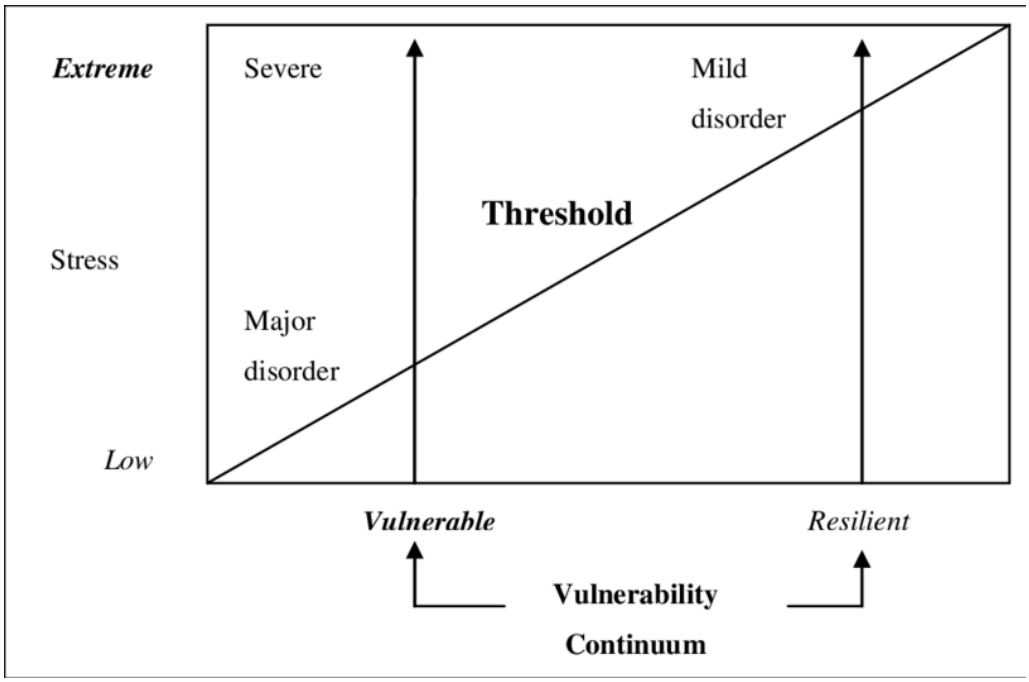

Figure 2: This model represents the vulnerability compared to the resilience of the participant and their ability to respond to stressful situations (Ingram & Luxton, 2005, 41).

Diathesis-Stress Interaction With Quasi Continuous Diathesis Model

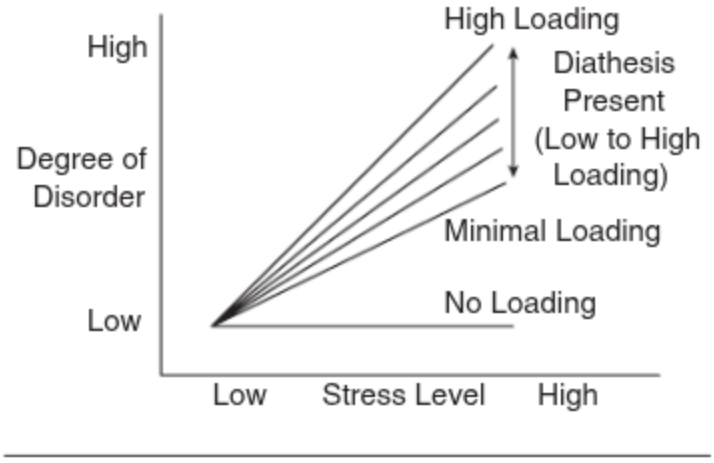

Figure 3: This model contains the stress levels as the independent variable and depending on the current diathesis, the degree of disorder is expressed. Through this model, a correlation between the amount of stress level and degree of disorder can be found through the amount of genetic predisposition of the individual. For example, it can be proven that those with high diathesis under higher stress levels will express a higher degree of disorder (Ingram & Luxton, 2005, 39).

Hypothesized, Modified-Vulnerability Model

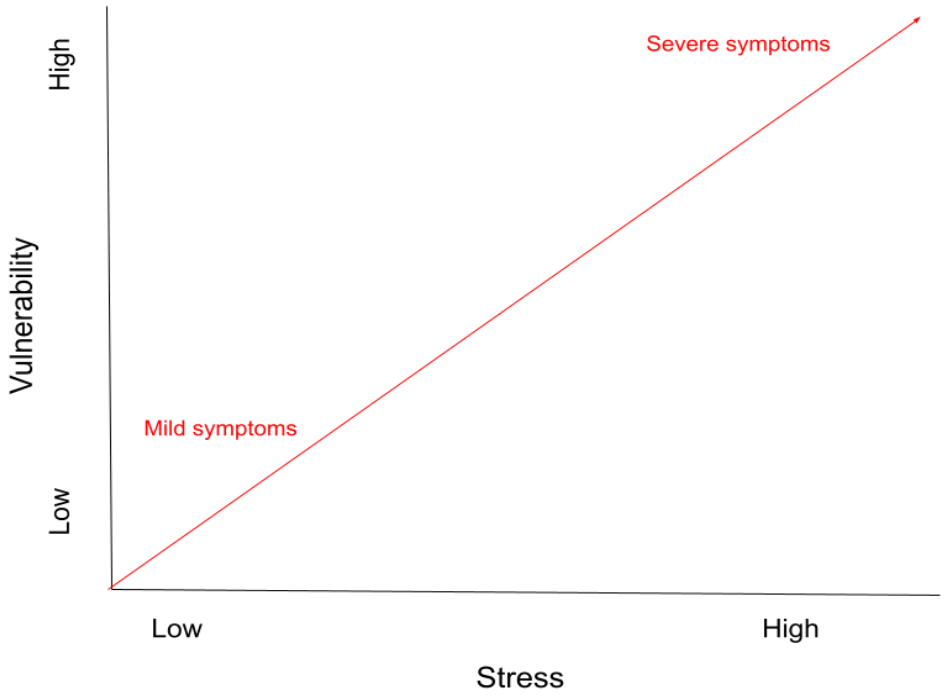

Figure 4: Depending on the stress level of the situation, participants' vulnerability level will be measured through their response. Since the risk variable in the vulnerability equation is constant for all participants, depending on the way participants respond to the given situation will determine the severity of their symptoms.