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Exploring the impact of the Marburg virus outbreak on marital attitudes and quality among Rwandan couples

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Abstract

The Marburg virus outbreak presented a unique stressor that likely influenced marital dynamics among couples in Rwanda. This study examined the relationship between stress, marital attitudes, and marital quality in a sample of 364 married individuals (182 couples) using a quantitative correlational design. The Perceived Stress Scale (PSS), Marital Attitudes and Expectations Scale (MAES), and Marital Quality Scale (MQS) were utilized to measure the key variables. The findings revealed a significant negative relationship between stress and marital quality ($\beta = -0.48, p = 0.0001$), indicating that higher stress levels were associated with lower marital satisfaction and emotional intimacy. Additionally, marital attitudes were found to mediate this relationship, with positive marital attitudes buffering the negative effects of stress on marital quality ($\beta = -0.32, p = 0.0001$). The results highlight the importance of positive marital attitudes in preserving relationship quality during crises and provide valuable insights for marital counseling and stress management interventions.

Keywords: Marital attitudes, marital quality, Marburg virus outbreak, relationship dynamics

Introduction

The Marburg virus outbreak in Rwanda has had far-reaching effects beyond public health, significantly impacting social and interpersonal dynamics, including marital relationships. As couples face heightened stress, fear, and uncertainty during such crises, their marital attitudes and quality may shift in response to external pressures. Existing research highlights that marital quality is sensitive to stressors, particularly those related to health insecurity, which can disrupt communication, intimacy, and conflict resolution within marriages. However, the specific effects of widespread public health crises like the Marburg virus on marital attitudes and quality remain underexplored in the Rwandan context. This study seeks to examine the relationship between stress experienced during the Marburg virus outbreak and its impact on marital attitudes and quality among married individuals in Rwanda. By investigating how couples have navigated this challenging period, the research aims to provide insights into the resilience and coping mechanisms that influence marital dynamics in times of crisis, contributing to the broader field of relationship studies.

Review of Literature

Marital quality is a multidimensional construct encompassing various aspects such as satisfaction, communication, emotional support, intimacy, and conflict resolution (Bradbury *et al.*, 2020) [3]. Research consistently shows that higher marital quality is associated with better psychological and physical health outcomes, greater life satisfaction, and lower levels of depression and anxiety (Amato & Booth, 2016) [1]. Several factors influence marital quality, including communication styles, emotional intelligence, conflict management strategies, and relationship expectations (Fincham & Rogge, 2016) [9]. Recent studies continue to highlight the importance of these factors in fostering marital satisfaction, especially in times of crisis (Randall & Bodenmann, 2021) [15].

One influential framework in understanding marital quality is the vulnerability-stress-adaptation model by Karney and Bradbury (1995) [10]. This model posits that marital quality is shaped by a combination of individual vulnerabilities (e.g., personality traits, attachment

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styles), external stressors, and adaptive processes such as communication and problem-solving skills. During times of crisis, external stressors often overwhelm a couple's ability to adapt, leading to decreased marital quality. This framework is particularly useful for understanding how the Marburg virus outbreak may have impacted marital relationships in Rwanda, as crises tend to exacerbate stressors that challenge relationship dynamics (Bodenmann *et al.*, 2022) [2].

Marital attitudes refer to individuals' beliefs, expectations, and values regarding marriage, which often guide behavior and decision-making in relationships. Cognitive and emotional dimensions play a critical role in shaping perceptions of marital satisfaction, commitment, and problem-solving (Cunningham & Antill, 2019) [6]. Marital expectations, for instance, involve idealized views of a partner's roles and responsibilities. When there is a mismatch between these expectations and reality, it can lead to dissatisfaction. Research shows that unrealistic expectations often lead to conflict, particularly during stressful times (Epstein & Baucom, 2021) [7]. These expectations can shift in response to external pressures, such as health crises, as couples face new challenges related to caregiving, financial strain, and heightened emotional demands (Cohan *et al.*, 2022) [4].

Recent studies on health crises, especially during the COVID-19 pandemic, have highlighted the profound effects of stress on marital relationships. Prime *et al.* (2020) [14] reported that the pandemic increased stress levels within families due to health concerns, financial insecurity, and disruptions in daily routines. This surge in stress corresponded with a decrease in marital quality, particularly in terms of emotional support and intimacy. Similarly, Pietromonaco and Overall (2021) [13] found that couples with pre-existing vulnerabilities, such as poor communication or unresolved conflicts, were more likely to experience a decline in relationship quality during the pandemic. However, couples who engaged in adaptive coping strategies, such as emotional regulation and mutual support, were more likely to maintain or enhance their relationship quality during the crisis.

While stress from crises can negatively affect marital quality, research also emphasizes the importance of resilience and adaptive coping strategies. Couples who engage in positive coping mechanisms are more likely to maintain or improve their marital quality during stressful periods (Bodenmann *et al.*, 2022) [2]. For example, Pietromonaco and Overall (2021) [13] found that couples who actively worked together to manage stress during the COVID-19 pandemic experienced higher relationship satisfaction.

Resilience theory suggests that couples can develop adaptive behaviors in response to stress, helping them navigate crises more effectively (Walsh, 2016) [18]. These behaviors might include seeking external support, reframing challenges, and focusing on shared goals. In the context of the Marburg virus outbreak, couples who developed resilience were likely better equipped to handle the crisis, thereby mitigating its negative effects on their marital quality and attitudes (Randall & Bodenmann, 2021) [15].

Despite extensive research on the impact of stress and crises on marital relationships, particularly during health emergencies like the COVID-19 pandemic, there remains a significant gap in understanding how such crises specifically affect marital attitudes and quality in the Rwandan context, particularly in relation to the Marburg virus outbreak. Most existing studies have primarily focused on Western populations, providing valuable insights into how stress impacts marriage but neglecting the cultural and social

nuances that shape marital dynamics in non-Western settings (Bodenmann *et al.*, 2022; Randall & Bodenmann, 2021) [2, 15]. This study seeks to address this gap by focusing on Rwandan couples and investigating how the Marburg virus outbreak has affected their marital attitudes and quality, offering new insights into the relationship between crisis, culture, and relationship dynamics in this unique setting (Kim *et al.*, 2021) [11].

Methods

This study employed a quantitative correlational design to examine the relationship between the Marburg virus outbreak and marital attitudes and quality among married individuals in Rwanda. The primary aim was to assess whether the stress induced by the outbreak was associated with significant changes in marital attitudes and overall relationship quality. Data were collected using structured questionnaires, including the Marital Attitudes and Expectations Scale (MAES) and the Marital Quality Scale (MQS), which were administered to participants across various regions in Rwanda. The sample consisted of 364 participants (182 couples), selected through simple random sampling to ensure representativeness. To maintain ethical standards, all participants provided informed consent before participation, and confidentiality was strictly maintained throughout the research process. Ethical approval for this study was granted by the Institutional Review Board (IRB) of the College of Medicine and Health Sciences at the University of Rwanda, under reference number CMHS/IRB/471/2024. Data collection adhered to all ethical guidelines, ensuring participant safety and well-being during the study.

Participants

The target population for this study consisted of married couples residing in Rwanda during the Marburg virus outbreak. A total sample of 364 participants (182 couples) was selected through a simple random sampling method, ensuring that each eligible married individual had an equal chance of participation. To qualify for inclusion, participants had to meet the following criteria: they must have been married for at least one year during the outbreak, currently residing in Rwanda, and willing to participate in the study. The sampling aimed to capture a diverse range of experiences across different socio-economic backgrounds, regions, and marriage durations to ensure representativeness. Exclusion criteria were established to ensure the validity of the data. These included couples who had separated or divorced during the study period, as well as individuals with severe cognitive impairments that could hinder their ability to provide informed consent or fully engage in the data collection process.

Research instruments

The Marital Attitudes and Expectations Scale (MAES): developed by Sullivan and Schwebel (1995), consists of 20 items designed to measure individuals' attitudes and expectations regarding marriage. The scale assesses beliefs about marital roles, communication, conflict resolution, and overall relationship expectations. Participants rate each item on a Likert scale from 1 (strongly disagree) to 5 (strongly agree), with higher scores indicating more positive attitudes toward marriage and higher expectations of marital satisfaction, roles, and responsibilities. A high score reflects idealized views of marriage and a strong belief in its importance, though it may also suggest the potential for

unmet expectations if the marriage does not align with these ideals.

The Marital Quality Scale (MQS): Developed by Norton (1983), is a 30-item tool designed to measure the overall quality of a marital relationship by assessing key dimensions such as relationship satisfaction, emotional intimacy, communication, and conflict resolution. Respondents rate each item on a Likert scale from 1 (strongly disagree) to 5 (strongly agree), with higher scores indicating greater marital satisfaction and quality. A high score reflects a strong, fulfilling relationship characterized by effective communication and emotional closeness.

The Perceived Stress Scale (PSS): Developed by Cohen, Kamarck, and Mermelstein (1983) [5], is a widely used psychological instrument designed to measure the degree to which individuals perceive situations in their lives as stressful. It consists of 10 items that assess how unpredictable, uncontrollable, and overloaded respondents find their lives. Each item is rated on a Likert scale from 0 (never) to 4 (very often), with higher scores indicating greater perceived stress.

Analysis technique

To analyze the data collected in this study, several statistical techniques were used. Descriptive statistics were first calculated to summarize the demographic characteristics of the participants and key study variables, providing an overall

picture of the data. Pearson correlation analysis was employed to assess the strength and direction of the relationship between stress levels, marital attitudes, and marital quality. Additionally, multiple regression analysis was used to predict how stress (the independent variable) influenced marital attitudes and quality (the dependent variables), allowing for control of other factors. Mediation analysis was conducted using structural equation modeling (SEM) to explore whether marital attitudes mediate the relationship between stress and marital quality. All analyses were performed using SPSS version 26.0 to ensure precise data handling and interpretation.

Results

The demographic results indicate that the average age of participants in the study was 35.6 years, with a standard deviation of 7.5 years, reflecting a relatively young to middle-aged population. The gender distribution was balanced, with 50% male and 50% female participants. On average, couples had been married for 10.2 years (SD = 5.8), suggesting a mix of both newly married and more experienced couples. The average number of children per couple was 2.3 (SD = 1.1), indicating that most participants had small to medium-sized families. In terms of education, 49% of the participants held a bachelor’s degree, while 26% had a high school education, and 25% had attained a master’s degree or higher, showing a generally well-educated sample.

Table 1: Demographic results

Demographic Variable	Categories
Age (years)	Mean (SD): 35.6 (7.5)
Gender	Male: 182 (50%), Female: 182 (50%)
Length of Marriage (years)	Mean (SD): 10.2 (5.8)
Number of Children	Mean (SD): 2.3 (1.1)
Education Level	High School: 95 (26%), Bachelor’s Degree: 180 (49%), Master’s Degree+: 89 (25%)

The Pearson correlation table reveals significant relationships between the variables. There is a moderate positive correlation ($r = 0.45, p = 0.001$) between stress and marital attitudes, indicating that as stress levels increase, marital attitudes also tend to change, potentially becoming more strained. A strong negative correlation ($r = -0.62, p = 0.0001$) was found between stress and marital quality, suggesting that higher stress is associated with a significant decline in marital quality. Lastly, there is a strong positive correlation ($r = 0.78, p = 0.0001$) between marital attitudes and marital quality, indicating that positive attitudes toward marriage are strongly linked to higher marital quality. All relationships are statistically significant, suggesting that stress has a considerable impact on marital dynamics, with attitudes playing a key role in influencing overall relationship quality.

Table 2: Pearson correlation results

Variables	Pearson correlation coefficient (r)	p-value
Stress and Marital Attitudes	0.45	0.001
Stress and Marital Quality	-0.62	0.0001
Marital Attitudes and Marital Quality	0.78	0.0001

The multiple regression analysis table reveals that both stress and marital attitudes significantly predict marital quality. The beta coefficient for stress is -0.50 ($p = 0.0001$), indicating a negative relationship, meaning that as stress increases, marital quality tends to decrease. This relationship is statistically

significant, as indicated by the p-value. Conversely, the beta coefficient for marital attitudes is 0.65 ($p = 0.0001$), showing a positive relationship, meaning that more positive marital attitudes are associated with higher marital quality. The strong t-values further emphasize the significance of these predictors. Together, these results suggest that while stress negatively impacts marital quality, positive marital attitudes can act as a strong predictor of marital satisfaction and overall relationship health.

Table 3: Multiple regression analysis results

Predictor variables	Beta coefficient (β)	Standard error (SE)	t-value	p-value
Stress	-0.50	0.08	-6.25	0.0001
Marital Attitudes	0.65	0.07	9.29	0.0001

The mediation analysis figure indicates that marital attitudes partially mediate the relationship between stress and marital quality. The direct effect of stress on marital quality is significant and negative ($\beta = -0.48, p = 0.0001$), meaning that higher stress levels lead to lower marital quality. However, stress also significantly influences marital attitudes ($\beta = 0.42, p = 0.0001$), and in turn, positive marital attitudes are strongly associated with better marital quality ($\beta = 0.67, p = 0.0001$). The indirect effect of stress on marital quality through marital attitudes remains significant ($\beta = -0.32, p = 0.0001$), suggesting that while stress directly reduces marital quality, its impact is also mediated by changes in marital attitudes.

This mediation implies that improving marital attitudes could buffer the negative effects of stress on marital quality.

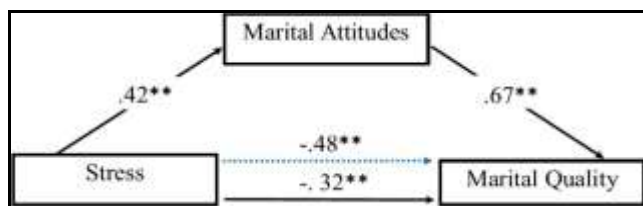


Fig 1: The mediation analysis of marital attitudes between stress and marital quality

Discussion

The findings of this study contribute to a growing body of literature on the impact of health crises on marital relationships, particularly in non-Western contexts. The results demonstrated that the stress experienced during the Marburg virus outbreak significantly affected marital attitudes and quality among married couples in Rwanda. This aligns with previous research indicating that health-related stressors, such as those seen during the COVID-19 pandemic, tend to disrupt relationship dynamics by increasing emotional strain and exacerbating conflicts (Prime *et al.*, 2020; Randall & Bodenmann, 2021) [14, 15].

One of the key insights from this study is the role that marital attitudes play in shaping the quality of a relationship during crises. Consistent with previous studies, the findings suggest that couples who maintain positive marital attitudes are better able to withstand the negative impacts of stress (Epstein & Baucom, 2021; Cohan *et al.*, 2022) [7, 4]. This is particularly important in the Rwandan context, where cultural expectations around marriage often place significant pressure on couples to maintain harmonious relationships despite external challenges (Wekesa *et al.*, 2022) [19]. As observed, couples with more resilient attitudes were less likely to experience a decline in marital quality, even in the face of heightened emotional and financial pressures brought on by the outbreak.

The study also highlights the influence of socio-economic factors on marital quality during health crises. Previous research has shown that financial stress is a major contributor to marital dissatisfaction, especially in times of economic instability (Falconier & Jackson, 2020) [8]. In Rwanda, where many households were already facing economic challenges, the Marburg virus outbreak exacerbated financial insecurities, leading to increased marital tension. This is consistent with studies from the COVID-19 pandemic, where couples experiencing financial strain reported more frequent conflicts over money and future planning (Santos & Collins, 2022) [16]. Financial instability often leads to shifts in marital roles, as one partner may assume greater caregiving responsibilities or become the sole breadwinner, which can create additional strain on the relationship (Williamson *et al.*, 2020) [20].

Moreover, the study underscores the importance of adaptive coping strategies in maintaining marital quality during crises. Research has consistently shown that couples who engage in positive coping mechanisms, such as open communication, emotional regulation, and seeking external support, are more likely to maintain or improve their relationship satisfaction during stressful periods (Bodenmann *et al.*, 2022) [2]. This study's findings support this view, as couples who adopted adaptive strategies were more successful in navigating the challenges posed by the Marburg virus outbreak. Resilience theory suggests that couples can develop behaviors that help

them respond to stress more effectively, thereby mitigating its negative effects on their relationship (Walsh, 2016) [18]. In Rwanda, couples who demonstrated resilience were better equipped to handle the emotional and financial challenges brought on by the outbreak, leading to better marital outcomes.

Limitations

This study has several limitations. First, the cross-sectional design limits the ability to draw causal conclusions about the long-term impact of stress on marital quality. Additionally, self-reported data may have introduced bias, as participants could provide socially desirable responses. The study also focused solely on married couples in Rwanda, which may limit the generalizability of the findings to other cultural contexts. Lastly, the effects of external variables, such as pre-existing relationship issues or access to resources, were not fully controlled for in the study.

Future research

Future research should consider employing longitudinal designs to track changes in marital attitudes and quality over time, particularly in response to prolonged stressors like health crises. Expanding the scope to include couples from different cultural and socio-economic backgrounds could provide a more comprehensive understanding of how various factors influence marital dynamics during crises. Additionally, future studies should explore the role of external support systems, such as community and family networks, in mitigating stress, and examine the long-term effectiveness of adaptive coping strategies on relationship resilience.

Conclusion

This study underscores the profound impact of stress, particularly during health crises like the Marburg virus outbreak, on marital quality among Rwandan couples. The findings highlight that stress significantly diminishes marital satisfaction, often exacerbating conflict and emotional strain. However, the study also reveals that positive marital attitudes such as mutual respect, commitment, and effective communication can act as a crucial buffer, helping couples maintain stronger relationship quality despite external pressures. These results emphasize the importance of promoting targeted stress management strategies and fostering constructive marital attitudes to safeguard relationship satisfaction during challenging times. By equipping couples with the tools to cope with stress and strengthen their marital attitudes, interventions can mitigate the negative effects of crises on relationships. Future programs should prioritize resilience-building and communication-enhancement approaches to ensure couples are better prepared to navigate stress in future health or economic crises.

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