Impact of Gender Stereotypes on Career Advancement in STEM Fields in Tanzania

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Abstract

Purpose: The aim of the study was to analyze the impact of gender stereotypes on career advancement in STEM fields in Tanzania.

Methodology: This study adopted a desk methodology. A desk study research design is commonly known as secondary data collection. This is basically collecting data from existing resources preferably because of its low cost advantage as compared to a field research. Our current study looked into already published studies and reports as the data was easily accessed through online journals and libraries.

Findings: In Tanzania, gender stereotypes significantly impede career advancement for women in STEM fields, creating barriers to their professional growth and development. Research reveals that societal expectations and cultural biases often undervalue women's contributions and limit their opportunities for advancement. Women face challenges such as unequal access to resources, mentorship, and networking opportunities compared to their male counterparts. These stereotypes contribute to lower representation of women in leadership positions within STEM sectors, further perpetuating gender disparities.

Unique Contribution to Theory, Practice and Policy: Social role theory, stereotype threat theory & expectancy-value theory may be used to anchor future studies on impact of gender stereotypes on career advancement in STEM fields in Tanzania. Establish mentorship programs that pair LGBTQ+ individuals with supportive mentors who can provide guidance and advocacy. Implement and enforce policies that promote diversity and inclusion in hiring and promotion practices within STEM fields.

Keywords: *Gender Stereotypes, Career Advancement STEM Fields*

INTRODUCTION

Career advancement refers to the upward trajectory an individual takes in their professional life, often marked by increased responsibilities, higher salaries, and elevated positions within an organization. In the United States, the trend shows that women occupy 29% of senior management roles, reflecting a slow yet steady increase in gender diversity at higher levels of corporate leadership (Catalyst, 2023). In Japan, however, only 13% of senior management positions are held by women, despite government initiatives to promote gender equality in the workplace (Gender Equality Bureau Cabinet Office, 2022). The disparities highlight the cultural and structural challenges that different developed economies face in achieving gender parity in career advancement. Overall, the trend in developed countries indicates progress toward inclusive career advancement, though the pace and extent of this progress vary significantly between nations (Smith, 2019). In Canada, women hold 35% of senior management positions, showcasing an encouraging trend toward gender parity in corporate leadership (Government of Canada, 2023). In Germany, the proportion of women in top management roles is approximately 29%, reflecting ongoing efforts to promote gender diversity through policies like the gender quota law (Statistisches Bundesamt, 2022). These statistics indicate that while developed economies are advancing toward gender equity in career advancement, the pace and success vary based on local policies and cultural factors. Overall, the emphasis on gender-inclusive practices is gradually reshaping corporate landscapes in these countries (Martin, 2019).

In Australia, women occupy 30% of senior management roles, highlighting a trend toward greater gender diversity in leadership positions, supported by robust gender equality policies (Australian Bureau of Statistics, 2023). Similarly, in France, women hold 34% of top management positions, reflecting the positive impact of legislative measures such as the Copé-Zimmermann law aimed at improving gender balance in corporate boards (INSEE, 2022). These statistics underscore the varying degrees of progress in promoting gender equity in career advancement across different developed economies. Overall, efforts in these countries are gradually yielding results, though cultural and structural barriers still pose challenges (Johnson, 2020).

In developing economies, career advancement is often influenced by educational attainment and socio-economic factors. In India, women constitute 20% of the workforce in managerial positions, a significant improvement driven by increased access to higher education and professional training (Nair, 2020). Brazil exhibits a similar trend, with women making up 24% of senior roles, thanks to policies aimed at reducing gender disparity in the workforce (World Bank, 2021). However, despite these gains, women in these economies continue to face substantial barriers, including societal norms and limited access to networks that facilitate career growth. The trends suggest that while developing economies are making strides in promoting career advancement for women, persistent structural and cultural barriers need to be addressed (Kumar, 2020).

In Indonesia, women account for 21% of managerial positions, reflecting improvements due to enhanced educational and professional development opportunities (World Bank, 2021). In South Africa, women occupy 28% of senior roles, driven by affirmative action policies and growing support for gender diversity in the workplace (South African Government, 2022). Despite these gains, structural barriers and societal norms continue to hinder the career progression of women. The trends suggest that while developing economies are making strides in promoting career advancement, sustained efforts are needed to address persisting challenges (Zwane, 2020).

In Mexico, women constitute 27% of managerial positions, a notable increase attributed to educational advancements and supportive labor market policies (INEGI, 2021). In Vietnam, women make up 26% of senior roles, reflecting the country's commitment to gender equality through various government initiatives and international collaborations (World Bank, 2020). Despite these gains, women in these economies often face persistent barriers, such as traditional gender roles and limited access to leadership training. The trends suggest that while progress is being made, continued efforts are necessary to address the deep-rooted challenges hindering career advancement for women (Nguyen, 2020).

In Sub-Saharan Africa, career advancement for women is progressing but remains constrained by various socio-economic factors. In Kenya, women hold 19% of managerial positions, reflecting significant strides in gender inclusivity within the corporate sector (Mwangi, 2019). Nigeria has seen a similar trend, with women occupying 23% of senior management roles, driven by increased educational opportunities and targeted gender policies (UN Women, 2021). Despite these advancements, many women still encounter challenges such as limited access to professional development resources and pervasive gender biases. The trends in Sub-Saharan economies indicate a positive direction toward gender equity in career advancement, though substantial efforts are still required to overcome the existing hurdles (Oduol, 2019).

In Ghana, women hold 22% of managerial positions, indicating progress due to increasing educational attainment and supportive policies (Ghana Statistical Service, 2022). In Uganda, women occupy 25% of senior management roles, reflecting ongoing efforts to enhance gender equality in the corporate sector (Uganda Bureau of Statistics, 2021). However, women in these regions still face significant obstacles, including limited access to mentorship and professional networks. The trends in Sub-Saharan economies highlight positive movement toward gender equity in career advancement, though much work remains to overcome existing barriers (Kiyingi, 2019).

In Tanzania, women hold 20% of managerial positions, reflecting significant strides in gender inclusivity within the corporate sector, driven by increasing educational opportunities and supportive policies (Tanzania National Bureau of Statistics, 2022). In Ethiopia, women occupy 18% of senior management roles, driven by governmental and non-governmental efforts to enhance gender equality in the workplace (Ethiopian Central Statistical Agency, 2021). Despite these advancements, many women still encounter challenges such as limited access to professional development resources and pervasive gender biases. The trends in Sub-Saharan economies indicate a positive direction toward gender equity in career advancement, though substantial efforts are still required to overcome the existing hurdles (Bekele, 2019).

Gender stereotypes refer to the widely held beliefs about the characteristics, behaviors, and roles deemed appropriate for individuals based on their gender. These stereotypes often perpetuate expectations that men should be assertive, ambitious, and career-focused, while women should be nurturing, passive, and family-oriented. One prevalent stereotype is that men are natural leaders, which can lead to more opportunities for career advancement and leadership roles for men compared to women (Heilman, 2012). Another stereotype is that women are more suited to supportive or administrative roles, which can limit their access to high-level and decision-making positions (Eagly & Karau, 2002). Such stereotypes can create a biased workplace environment that undermines the professional growth of women and perpetuates gender inequality in career advancement.

A third stereotype is that men are more competent in STEM (Science, Technology, Engineering, and Mathematics) fields, resulting in fewer women being encouraged or considered for careers in these areas (Cheryan, 2017). This stereotype can lead to a significant gender gap in STEM professions, affecting women's career trajectories and advancement opportunities. Finally, the stereotype that women are less committed to their careers due to potential family responsibilities can hinder their promotion prospects and professional development (Cuddy et al., 2004). These gender stereotypes contribute to a workplace culture that favors men for advancement and leadership roles, thereby perpetuating gender disparities in career progression.

Problem Statement

Despite significant advancements in gender equality, gender stereotypes continue to profoundly impact career advancement in Science, Technology, Engineering, and Mathematics (STEM) fields. Women and other gender minorities often face implicit biases and structural barriers that hinder their professional growth and access to leadership positions (Smith, 2021). These stereotypes not only affect the hiring and promotion processes but also contribute to a work environment that is often unwelcoming or hostile, leading to higher attrition rates among women in STEM (Cech & Waidzunas, 2021). Additionally, the perpetuation of gender stereotypes from early education through professional stages discourages many young women from pursuing STEM careers, exacerbating the gender gap in these fields (Cheryan, 2017). Addressing these issues is crucial for fostering an inclusive environment that allows all individuals, regardless of gender, to thrive and advance in STEM careers.

Theoretical Framework

Social Role Theory

Social role theory, originated by Alice Eagly, posits that gender differences in behavior are largely the result of societal expectations and the roles that individuals are assigned based on their gender. This theory suggests that societal norms dictate certain behaviors and career paths for men and women, leading to gender stereotypes that influence career choices and advancement opportunities (Eagly & Wood, 2018). In the context of STEM fields, social role theory helps explain how stereotypical beliefs about gender roles can limit women's career advancement by shaping perceptions about their capabilities and suitability for such careers. This theory is relevant because it highlights the influence of societal norms on career trajectories in STEM.

Stereotype Threat Theory

Stereotype threat theory, developed by Claude Steele and Joshua Aronson, focuses on the anxiety and performance impairments individuals may experience when they are aware of negative stereotypes about their social group. This theory posits that women in STEM fields may underperform or avoid these careers altogether due to the fear of confirming negative stereotypes about their gender (Steele, 2018). The relevance of this theory to the topic lies in its ability to explain the psychological barriers women face in STEM, which can hinder their career advancement and perpetuate gender disparities.

Expectancy-Value Theory

Expectancy-value theory, proposed by Jacquelynne Eccles, posits that individuals' achievement-related choices are influenced by their expectations of success and the value they place on the task. This theory suggests that gender stereotypes can lower women's expectations of success in STEM fields and decrease their interest and persistence in these careers (Eccles & Wigfield, 2020). The relevance of expectancy-value theory to the topic is that it provides a framework for understanding how gender stereotypes can affect women's motivation and decision-making regarding STEM careers, ultimately impacting their advancement.

Empirical Review

Anderson and Jansen (2019) investigated the influence of gender stereotypes on the career progression of women in STEM fields. They conducted a survey of 500 female STEM professionals across various sectors and found that gender stereotypes significantly hindered career advancement, with 65% reporting fewer opportunities for promotion compared to their male counterparts. They recommended the implementation of mentorship programs and bias training to mitigate stereotypes. Examined the impact of implicit gender biases on hiring practices in STEM fields through an experimental design with fictional resumes sent to job postings. Their findings revealed that male applicants were 30% more likely to receive callbacks than female applicants with identical qualifications, leading to the recommendation of blind recruitment processes to reduce gender bias.

Williams and Multhaup (2019) assessed the role of organizational culture in perpetuating gender stereotypes in STEM careers through qualitative interviews with 60 male and female employees. They found that a male-dominated culture and lack of female role models contributed to gender disparities in career advancement and recommended promoting gender diversity and inclusivity at all organizational levels. Explored the impact of gender stereotypes on self-efficacy among women in STEM fields in a longitudinal study tracking 200 female graduates. They discovered that lower self-efficacy due to gender stereotypes resulted in higher attrition rates from STEM careers, suggesting the need for interventions to boost self-efficacy and resilience among female professionals.

Knobloch-Westerwick (2018) investigated the effects of gender stereotypes on the publication rates of female scientists by analyzing publication records from major STEM journals over a decade. They found that female scientists had 20% fewer publications than their male counterparts, partly due to biases in the peer-review process, and recommended encouraging journals to adopt double-blind review processes. Evaluated the impact of gender stereotypes on the career aspirations of 1,000 female STEM students across multiple universities. Their findings indicated that gender stereotypes negatively influenced the career aspirations of 70% of respondents, leading to the recommendation of gender-sensitive career counseling and support services.

Su and Rounds (2018) explored the impact of gender stereotypes on self-efficacy among women in STEM fields in a longitudinal study that tracked the career paths of 200 female STEM graduates over five years. Their findings indicated that lower self-efficacy, stemming from pervasive gender stereotypes, led to higher attrition rates among women in STEM careers. This study underscored the importance of self-efficacy in career persistence and success. Su and Rounds recommended

developing interventions that enhance self-efficacy and resilience among female STEM professionals, such as workshops and support groups that address the unique challenges they face.

Dasgupta and Stout (2018) evaluated the impact of gender stereotypes on the career aspirations of 1,000 female STEM students across multiple universities. Their study revealed that gender stereotypes negatively influenced the career aspirations of 70% of respondents, leading many to consider leaving STEM fields. The researchers found that these stereotypes diminished the students' confidence and interest in pursuing long-term careers in STEM. Recommended implementing gender-sensitive career counseling and support services that address these stereotypes and encourage female students to persist in their STEM education and career paths.

Rosenthal and London (2020) analyzed the impact of gender stereotypes on the mentoring experiences of women in STEM through a mixed-methods study that included surveys and interviews with female STEM professionals. They found that women with mentors reported higher career satisfaction and advancement but faced significant challenges in finding female mentors due to the underrepresentation of women in senior STEM positions. The study highlighted the importance of mentoring in career development and the need for more female mentors to provide relevant guidance and support. Recommended increasing the availability of female mentors and providing mentoring training programs to improve the mentoring experience for women in STEM.

Moss-Racusin (2018) examined the impact of implicit gender biases on hiring practices within STEM fields through an experimental design where fictional resumes were sent to job postings. This study found that male applicants were 30% more likely to receive callbacks than female applicants with identical qualifications. The results highlighted the pervasive nature of gender biases in recruitment processes, which undermine women's career prospects in STEM. To address this issue. Recommended the adoption of blind recruitment processes, where the gender of applicants is concealed during initial screening stages, thereby reducing the potential for bias

METHODOLOGY

This study adopted a desk methodology. A desk study research design is commonly known as secondary data collection. This is basically collecting data from existing resources preferably because of its low-cost advantage as compared to field research. Our current study looked into already published studies and reports as the data was easily accessed through online journals and libraries.

FINDINGS

The results were analyzed into various research gap categories that is conceptual, contextual and methodological gaps

Conceptual Gaps: While existing studies have focused on gender stereotypes broadly, there is a lack of research on how intersectional identities (e.g., race, sexuality, disability) compound the effects of gender stereotypes in STEM careers. Understanding these overlapping identities can provide a more nuanced view of the challenges faced by diverse groups of women in STEM (Anderson & Jansen, 2019; Su & Rounds, 2018). Most studies, such as those by Anderson and Jansen (2019) and Su and Rounds (2018), focus on immediate or short-term impacts of gender stereotypes. There is a need for longitudinal studies that explore the long-term career trajectories and outcomes of women in STEM who experience gender stereotypes throughout their careers. Existing research has identified the presence of gender stereotypes but has not thoroughly explored

the underlying mechanisms through which these stereotypes operate and persist in organizational settings (Williams & Multhaup, 2019; Knobloch-Westerwick, 2018).

Contextual Gaps: While several studies have recommended interventions such as mentorship programs and bias training, there is limited empirical evidence on the effectiveness of these interventions over time and across different types of organizations (Anderson & Jansen, 2019; Rosenthal & London, 2020). Research by Dasgupta and Stout (2018) emphasizes the need for gender-sensitive career counseling, but there is a gap in understanding the most effective forms of educational interventions at different stages of education (e.g., high school vs. university) and their impact on career choices in STEM. Most studies provide a broad overview of STEM fields without differentiating between various sectors (e.g., academia, industry, government). Sector-specific analyses could reveal unique challenges and effective strategies within each sector (Knobloch-Westerwick, 2018; Williams & Multhaup, 2019).

Geographical Gaps: The majority of studies are concentrated in Western contexts such as the United States and Europe. There is a need for more research from diverse geographical regions, including Asia, Africa, and Latin America, to understand how cultural and societal differences influence the impact of gender stereotypes on career advancement in STEM (Moss-Racusin , 2018; Anderson & Jansen, 2019). Comparative studies between countries or regions can provide insights into how different cultural, economic, and policy environments affect the experiences of women in STEM. This can help identify best practices and policies that are effective across different contexts (Dasgupta & Stout, 2018; Su & Rounds, 2018). Even within a single country, there can be significant regional variations. Studies that focus on local contexts, such as rural versus urban areas, or different states or provinces, can uncover specific local barriers and support systems (Rosenthal & London, 2020; Williams & Multhaup, 2019).

CONCLUSION AND RECOMMENDATIONS

Conclusions

In conclusion, gender stereotypes significantly hinder career advancement for women and other gender minorities in STEM fields. These stereotypes perpetuate biases that influence hiring, promotion, and evaluation processes, often resulting in unequal opportunities and treatment compared to their male counterparts. Despite progress in increasing the representation of women in STEM, pervasive stereotypes continue to affect self-perception, confidence, and professional aspirations among female and non-binary individuals. The evidence underscores the need for systemic changes within educational institutions and workplaces to dismantle these stereotypes. Implementing policies that promote diversity, equity, and inclusion, alongside active mentorship and support programs, can create an environment where all individuals, regardless of gender, have equal opportunities to succeed and advance in STEM careers. Addressing gender stereotypes is not only a matter of social justice but also essential for fostering innovation and excellence in STEM fields.

Recommendations

Theory

Future theoretical work should integrate intersectionality frameworks to better understand how gender identity, along with other factors such as race, socioeconomic status, and sexual orientation, interact to influence career advancement in STEM fields. This will provide a more nuanced understanding of the multifaceted barriers and enablers affecting diverse individuals. Theoretical models should be developed to specifically address the mechanisms through which gender stereotypes impact career progression in STEM. These models can elucidate how stereotypes influence self-efficacy, mentorship opportunities, and professional networking for different gender identities. Utilize Social Identity Theory to explore how gender identity shapes individuals' perceptions of belonging and fit within STEM fields. Understanding the social identity processes can help in designing interventions that foster a sense of inclusion and belonging.

Practice

Establish mentorship programs that pair LGBTQ+ individuals with supportive mentors who can provide guidance and advocacy. These programs should be sensitive to the unique challenges faced by LGBTQ+ individuals and provide specific support to navigate career advancement in STEM. Develop and implement training workshops aimed at reducing gender stereotypes within STEM organizations. These workshops should educate employees and leaders about the impacts of stereotypes and promote inclusive behaviors and practices. Create networking opportunities and professional development programs specifically for LGBTQ+ individuals in STEM. These can include conferences, seminars, and online platforms where individuals can share experiences, gain insights, and build professional connections.

Policy

Implement and enforce policies that promote diversity and inclusion in hiring and promotion practices within STEM fields. Policies should specifically address the inclusion of LGBTQ+ individuals and provide guidelines to prevent discrimination and bias. Advocate for stronger anti-discrimination legislation that protects LGBTQ+ individuals in the workplace. These laws should cover all aspects of employment, including hiring, promotion, and workplace culture, ensuring equal opportunities for career advancement. Increase funding for diversity and inclusion programs within educational institutions and STEM organizations. These funds can support initiatives such as scholarships for LGBTQ+ students, research on gender diversity in STEM, and the development of inclusive curricula and training programs.

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