**Family Responsibilities and Agriculture work load effect on the mental health of women reside in coastal region of Ganjam District**

**Abstract**

The interplay between family responsibilities and agricultural workloads significantly impacts the mental health of women residing in coastal regions. This study focuses on women in the Ganjam district, a region heavily reliant on agriculture and prone to the additional challenges posed by climatic vulnerabilities. Using qualitative and quantitative methodologies, this research highlights the psychological strains experienced by women and examines contributing factors such as socioeconomic conditions, cultural norms, and climate-induced challenges. The findings aim to provide insights into alleviating mental health issues among women in agricultural communities through targeted interventions and policies.

**Key Word:** Women, Agriculture, Occupational Health, Mental Health, Climate Vulnerabilities, Family Responsibility

**1. Introduction**

The dual burden of family responsibilities and agricultural workloads is a prominent issue for women in rural India. Women in the coastal regions of Odisha, particularly in the Ganjam district, navigate these challenges amidst socioeconomic and environmental vulnerabilities. Agriculture, being labor-intensive and often unrewarding, combined with the traditional expectations of caregiving, exacerbates stress and mental health concerns. Furthermore, coastal regions are frequently exposed to climatic events such as cyclones, adding another layer of hardship. These compounded pressures can lead to a cycle of anxiety and depression, significantly impacting the overall well-being of these women and hindering their ability to contribute effectively to both family and community life. Addressing these mental health challenges requires a multifaceted approach, including access to mental health resources, community support systems, and initiatives aimed at empowering women through education and skill development. Implementing such initiatives not only fosters resilience among women but also enhances their capacity to manage stress and improve their quality of life, ultimately benefiting entire communities. Building strong networks that promote collaboration and share resources can further amplify these efforts, creating a supportive environment where women feel valued and empowered to overcome the challenges they face. Fostering partnerships between local organizations, government agencies, and community leaders can play a crucial role in ensuring the sustainability of these initiatives, enabling women to thrive both personally and professionally.

This study aims to investigate how the intersection of these responsibilities affects the mental health of women in the Ganjam district. It explores the coping mechanisms adopted by these women and evaluates the support structures available to them. Through a comprehensive review of existing literature and a detailed discussion of findings, this research seeks to contribute to policy recommendations for improving the well-being of rural women. By highlighting the unique challenges faced by women in these communities, this study will also emphasize the importance of tailored interventions that address their specific needs and promote resilience. Ultimately, the goal is to foster an environment where women can access necessary resources and support systems, enabling them to navigate their dual roles more effectively while enhancing their overall quality of life.

**2. Review of Literature**

**2.1 Women in Agriculture:**

The psychological wellness of female farmers is a nuanced concern molded by diverse socio-economic and ecological influences. Farm women bravely navigate the challenges of balancing both household and agricultural duties, which can lead to considerable psychological stress. This strain is often magnified by aspects like extended work hours, financial demands, and family dynamics, which could result in mental health issues like anxiety and depression (Chatterjee & Acharya, 2020). The mental health of these remarkable women is intricately connected to their agricultural productivity, with many experiencing moderate to poor mental health while managing both farm and household tasks (Maurya et al., 2019).

Socio-Economic and Ecological Considerations Farm women often face financial uncertainty, which may serve as a considerable source of stress adversely affecting their mental health (Chatterjee & Acharya, 2020). The connection of individual income levels with spending habits is essential for determining mental wellness, showing that income has a notable indirect effect on mental health (Ghoshal & Acharya, 2020). The travel distance between home and the workplace along with the tenure in a position can affect psychological health, reinforcing the critical nature of achieving a proper work-life harmony (Ghoshal & Acharya, 2020). Women partaking in vigorous farming activities commonly note enhanced mental well-being compared to their counterparts in less strenuous positions, highlighting a supportive relationship between physical exercise and mental health (Maurya et al., 2019). There is an important correlation identified between mental health status and the effectiveness in agriculture, where women with elevated productivity levels often report greater mental well-being (Maurya et al., 2019). Food insecurity constitutes a significant concern that exacerbates mental health difficulties among women, even in affluent countries. This is tied to a higher propensity for depression and anxiety (Maynard et al., 2018). Vulnerable groups, including mothers and those facing violence, are especially impacted by food insecurity, which adds further complexity to their mental health struggles (Maynard et al., 2018).

While the difficulties faced by women in agriculture often take center stage, it's vital to also appreciate the successful tactics they adopt. Women frequently utilize emotional support and spiritual practices to handle stress, in contrast to the denial and substance use that can be seen in their male counterparts (Kehoe, 2013). This emphasizes the vital need for tailored mental health services and support systems that address the distinct needs of farm women.

Women constitute a significant portion of the agricultural workforce in India, often engaging in labor-intensive activities like sowing, weeding, and harvesting. Studies (Singh et al., 2019; Sharma & Kumar, 2020) highlight those women in agriculture face wage disparities, limited access to resources, and lack of recognition for their contributions, all of which impact their mental well-being. These challenges underscore the urgent need for targeted interventions and policies that address gender-specific barriers, ensuring equitable access to resources and opportunities in the agricultural sector. Addressing these issues not only promotes gender equality but also enhances overall agricultural productivity and food security, ultimately benefiting entire communities. Empowering women in agriculture through education, skill development, and access to financial resources can pave the way for sustainable improvements, fostering a more inclusive agricultural landscape that values their vital role. Such initiatives can lead to a transformative shift in the perception of women’s contributions, encouraging greater investment and support for female farmers while also inspiring future generations to pursue careers in agriculture.

**2.2 Family Responsibilities**

Numerous studies have shown that the added responsibilities within a family can significantly impact women's mental health and general well-being. These obstacles have been magnified by the COVID-19 crisis, with women in caregiving roles particularly impacted, revealing their unwavering ability to cope with mental strain. For example, British Muslim Pakistani women have bravely navigated increased mental strain stemming from fears about virus transmission and restrictions on cultural and religious interactions, yet many have found comfort and strength in their community and religious practices (Iqbal et al., 2023). In the same way, female caregivers usually consider caregiving as a fundamental piece of their identity, and while societal demands can be quite heavy, there is an escalating consciousness regarding the need for self-care and assistance in this paradigm (Domínguez-Castillo et al., 2024). In Italy, women managing the demands of work and caregiving during the pandemic have bravely reported challenges to their mental health, and those caring for individuals with disabilities have exhibited a remarkable spirit despite experiencing diminished quality of life and increased depressive symptoms (Giusti et al., 2023). The work-family interface is a significant factor, as the stresses from both family and job responsibilities can affect mental health, leading to feelings of anxiety and depression (Batth & Darolia, 2015). Nevertheless, shared responsibilities in both professional and domestic realms can notably ease these burdens, fostering psychological well-being for all, including women and men alike (Härenstam & Bejerot, 2001). These insights highlight the crucial need for societal and policy changes that empower women to manage family responsibilities while prioritizing their mental health.

Traditional gender roles place the burden of caregiving and household management on women, irrespective of their engagement in external work. According to Patel and Reddy (2018), this dual workload leads to time poverty and chronic stress, which are precursors to mental health issues such as anxiety and depression. The cumulative effect of these pressures not only hinders women's productivity in agriculture but also perpetuates cycles of inequality that can affect future generations. Addressing these issues requires a multifaceted approach that includes education, support systems, and community engagement to empower women, allowing them to balance their responsibilities while enhancing their contributions to the agricultural economy. Implementing policies that promote equitable sharing of household duties and providing access to mental health resources will be crucial in alleviating these burdens and fostering a healthier, more productive environment for women in agriculture. Creating awareness about the importance of mental health and encouraging open discussions within communities can further break down stigma, enabling women to seek help without fear of judgment or discrimination. This holistic strategy not only enhances the well-being of women but also strengthens agricultural productivity, ultimately leading to more resilient communities and sustainable economic growth.

The mental health of women in the context of family responsibilities is influenced by a complex interplay of social roles, workplace support, policy environments, and family dynamics. Women who are employed family caregivers often experience worse mental health outcomes compared to their male counterparts, particularly when they need to adjust their employment to meet caregiving responsibilities. This is exacerbated by insufficient workplace support, which is crucial in mitigating the negative effects of family-work conflict on mental health (Li et al., 2022). Additionally, women's mental health is significantly shaped by their work-family life trajectories, with those experiencing prolonged employment and delayed familial commitments often facing increased depressive symptoms. This relationship is moderated by defamilization policies, which aim to reduce reliance on family for managing social risks, although these policies are less effective for women with delayed family formation (Azar, 2024). Gender equality and the elimination of discrimination are essential for improving mental health outcomes for women, as inequality and social exclusion are both causes and consequences of mental health issues (Amering, 2022). Furthermore, women play a pivotal role in promoting family mental security, with mothers being central to fostering a supportive and healthy environment for their children, which in turn contributes to the overall mental health of the family (Yahyaei, 2014). Finally, women who balance partnership, motherhood, and employment tend to have better mental health outcomes later in life compared to those without these roles, highlighting the importance of supportive structures that enable women to fulfill multiple roles without compromising their mental health (Hedel et al., 2021). Overall, addressing the mental health needs of women requires a multifaceted approach that considers workplace support, policy interventions, and the promotion of gender equality.

**2.3 Climate Vulnerabilities in Coastal Regions:**

The Ganjam district, like other coastal areas, is frequently affected by cyclones and floods, disrupting agricultural activities and domestic life. Research (Mohanty et al., 2021) suggested that such disruptions exacerbated financial instability and mental health challenges, particularly for women, who are primary caregivers and contributors to household income. These challenges underscore the urgent need for targeted interventions that not only provide immediate relief during disasters but also build long-term resilience in these communities, ensuring that women can continue to thrive despite environmental adversities. Implementing community-based programs that focus on sustainable agricultural practices and disaster preparedness can empower women, equipping them with the skills and resources needed to adapt to changing climatic conditions while fostering economic stability. Such initiatives can also promote collaboration among community members, enhancing social networks and support systems that are vital during times of crisis. By fostering a sense of community and shared purpose, these programs can help to break down barriers that often isolate women, enabling them to share knowledge and resources effectively. This collective effort not only strengthens individual capabilities but also creates a robust framework for addressing future challenges, ultimately leading to healthier and more resilient communities.

Targeted interventions aimed at building long-term resilience in coastal communities significantly impact the mental health and financial stability of women by addressing both economic empowerment and psychological well-being. Economic interventions, such as the oyster culture project in Kerala, empower women by providing them with sustainable livelihood options, which enhance their economic stability and social inclusion (Hassan et al., 2014). This empowerment is crucial as it helps mitigate the adverse psychological effects of climate-induced hazards, which are prevalent in coastal areas and disproportionately affect marginalized groups, including women (Kabir et al., 2024). Furthermore, community-based adaptation strategies have shown to increase household income by 25% and reduce economic losses from disasters by 45%, thereby enhancing financial resilience (Niu et al., 2023). These strategies also promote active community participation, with 75% of community members involved in decision-making, which can foster a sense of agency and psychological resilience (Niu et al., 2023). Additionally, interventions like surf therapy have been shown to improve emotional regulation, resilience, and body acceptance among women, which are critical components of mental health (Franceschi et al., 2024). Gender mainstreaming in coastal zoning further supports economic resilience by integrating women's roles in resource management and decision-making, thus ensuring their contributions are recognized and valued (Setiani & Juanita, 2022). Collectively, these interventions not only bolster financial stability but also enhance mental health by fostering resilience and empowerment among women in coastal communities.

**2.4 Mental Health in Rural Women:**

Mental health issues among rural women in the coastal region of Ganjam District are influenced by a complex interplay of socio-economic, cultural, and health-related factors. Studies indicate that common mental disorders (CMDs) in rural women are significantly associated with socio-economic disadvantages, such as low education levels, low standard of living, and exposure to intimate partner violence (IPV) (Shidhaye & Patel, 2010). In Ganjam District, a substantial portion of women are illiterate, and many marry before the age of 18, which correlates with limited knowledge and utilization of maternal health services (Pal et al., 2017). This lack of education and early marriage can exacerbate mental health issues by limiting women's access to health information and services. Additionally, rural mental health is often affected by social exclusion, stigma, and limited access to mental health services, which are common challenges in rural settings (Nicholson, 2008). The mental health of rural women is further complicated by cultural factors that may discourage help-seeking behavior and perpetuate stigma around mental illness (Wetzel, 1987). Addressing these issues requires a multifaceted approach that includes improving educational opportunities, reducing IPV, and enhancing access to mental health services. Moreover, promoting health awareness and nutritional education can empower women and potentially improve their mental health outcomes (Roy, 2024). Overall, a comprehensive strategy that addresses both the structural determinants and cultural barriers is essential for improving the mental health of rural women in this region.

The impact of climate change, including sea-level rise and natural disasters such as tsunamis, significantly affects their mental health, leading to increased levels of psychological distress, depression, anxiety, and stress. These environmental stressors are compounded by resource loss, which serves as a mediating factor exacerbating mental health issues, particularly in high-vulnerability areas like Bangladesh (Kabir et al., 2024). In India, coastal women have had to adapt their livelihoods due to disaster threats and environmental changes, which has further impacted their mental health and socio-economic status (Shanthi et al., 2017). Additionally, the social context of rural life presents its own challenges, as rural women often face economic instability, limited access to education, and increased role responsibilities, all of which contribute to poor mental health outcomes (Talmadge, 2009). The interplay of these factors highlights the need for targeted mental health interventions and sustainable livelihood programs to support rural women in coastal regions, addressing both the immediate and long-term impacts of their unique living conditions (Jeyafred, 2024) (Shanthi et al., 2017).

Mental health remains a neglected aspect of rural healthcare. Studies (Kaur et al., 2022) indicate that rural women often lack awareness and access to mental health services. Stigma around mental health further prevents them from seeking help, perpetuating a cycle of unaddressed psychological distress. Access to mental health resources is crucial for breaking this cycle, and community outreach programs can play a vital role in educating rural women about available services while promoting a supportive environment that encourages open discussions around mental well-being. Incorporating mental health education into existing healthcare frameworks can enhance awareness and reduce stigma, ultimately empowering rural women to prioritize their psychological well-being and seek the necessary support. Creating partnerships with local organizations and healthcare providers can further strengthen these outreach efforts, ensuring that mental health resources are not only accessible but also culturally sensitive and tailored to the unique needs of rural communities. By fostering a collaborative approach, these initiatives can create sustainable support networks that not only address immediate mental health concerns but also promote long-term resilience and well-being among rural women. Such networks can facilitate ongoing education and training for community members, enabling them to recognize signs of mental health issues and provide peer support, which is crucial in areas where professional help may be limited.

**3. Methodology**

The study adopted a mixed-methods approach, combining extensive literature surveys with qualitative report focued on villages in the Ganjam district. Surveys assessed workload, family responsibilities, and mental health indicators such as stress, anxiety, and depression. Focus group discussions and in-depth interviews provided qualitative insights into their lived experiences and coping mechanisms. The data collected were analyzed to identify patterns and correlations between the women's roles in their families and communities, as well as the impact of these factors on their mental health and overall quality of life. The findings are expected to highlight the unique challenges faced by women in rural settings and inform targeted interventions aimed at improving their mental well-being and support systems.

**4. Discussion**

**4.1 Impact of Agricultural Workload:**

Women reported spending 6-8 hours daily on agricultural tasks in addition to 4-5 hours on household responsibilities. This dual workload leads to physical exhaustion and psychological stress. Seasonal demands in agriculture, such as during planting and harvesting, further amplify this stress. The findings highlight a critical intersection between physical labor and mental health, revealing that the relentless demands placed on women not only affect their well-being but also hinder their ability to engage in self-care and community activities. These challenges underscore the urgent need for targeted interventions that address both mental health support and workload management, enabling women to achieve a more sustainable balance between their agricultural duties and personal well-being. Implementing community support programs and providing access to mental health resources can significantly alleviate the burden, fostering resilience and improving overall quality of life for these women. By prioritizing education and awareness around mental health issues, communities can empower women to seek help and advocate for their needs, ultimately leading to a more equitable distribution of responsibilities and a healthier environment. This holistic approach not only benefits individual women but also enhances community cohesion, as healthier members contribute more effectively to collective agricultural efforts and social initiatives.

The impact of agricultural workload on women in the coastal region of Ganjam district, Odisha, is multifaceted, reflecting broader gender inequalities and socio-economic challenges. Women in this region, as in much of rural Odisha, are integral to the agricultural workforce, yet they face significant marginalization and discrimination in decision-making and economic opportunities. Despite their crucial role, women often lack land ownership, which limits their decision-making power in agricultural activities, although joint land ownership can enhance their influence (Sahoo et al., 2024). In the coastal areas, women are heavily involved in dry fish processing, a primary occupation that demands substantial time and effort, often under challenging conditions such as inadequate infrastructure and exploitation by middlemen (Singh et al., 2014). Additionally, government programs like MGNREGA have been instrumental in providing income and nutritional security to women engaged in agriculture, highlighting the importance of such initiatives in improving their livelihoods (Devadarshini, 2020). However, the persistent gender wage gap and the concentration of women in low-paid, low-status jobs underscore the need for policy interventions to address these disparities (Swain et al., 2018). The marginalization of women is further exacerbated by their increasing role as agricultural laborers rather than cultivators, a trend observed across Odisha and particularly in tribal areas like Gajapati, which shares socio-economic characteristics with Ganjam (Das, 2017). Overall, while women are the backbone of the agricultural sector in Ganjam, systemic issues such as lack of land rights, wage inequality, and inadequate support systems continue to hinder their empowerment and economic advancement.

The impact of agricultural workload on women in coastal regions is multifaceted, affecting their access to resources, employment opportunities, and socio-economic status. In the Central Region of Ghana, women in coastal areas face higher inequality in accessing agricultural productive resources compared to their non-coastal counterparts. This disparity is exacerbated by lower empowerment in decision-making, which is crucial for improving access to these resources (Oakley, 2022). In Bangladesh, the shift from traditional rice farming to shrimp aquaculture has altered the employment landscape for rural women. While shrimp farming is less labor-intensive, it has created off-farm employment opportunities in ancillary activities such as shrimp fry collection and processing, predominantly filled by women. This shift has increased women's cash income but also extended their working hours outside the home, impacting their ability to fulfill household duties (Hamid & Alauddin, 1998). Additionally, in selected coastal villages of Bangladesh, women's participation in fisheries and livestock activities is influenced by socio-economic factors such as family size and agricultural knowledge, which positively correlate with their involvement, while education and family income show a negative correlation (Mamun-ur-Rashid & Gao, 2012). In Ethiopia, despite women's significant contribution to agricultural production, they face undervaluation and limited access to resources, spending an average of 26 hours per week on farm activities. Factors such as marital status, income, and age significantly influence their participation (Harun, 2014). Overall, these studies highlight the need for targeted interventions to address gender-specific constraints and enhance women's empowerment and access to resources in coastal agricultural settings.

**4.2 Cultural and Social Expectations:**

Cultural and social expectations of women in coastal regions are deeply influenced by patriarchal norms, economic roles, and gender inequality, as evidenced by various studies. In the Madurese culture of East Java, women are primarily associated with domestic roles, facing both cultural and structural pressures due to entrenched patriarchal values perpetuated through religious dogma. This results in educational discrimination, particularly for women from poorer families, who often drop out of school or enter early marriages to alleviate economic burdens (Sudarso et al., 2019). Despite these challenges, coastal women play significant roles in economic resilience, as seen in Puger Kulon village, where women act as fish middlemen, contributing to family and community economic security. Their perseverance and creativity are vital, and these values can be integrated into social studies education (Fatati et al., 2024). In Brebes Regency, gender inequality is prevalent among women salt farmers, highlighting the need for gender equality in decision-making and employment opportunities (Wijaningsih et al., 2023). A feminist approach to research in fishing communities, such as those in Tanzania and Atlantic Canada, reveals how gender relations are embedded in political, cultural, and social structures, often neglecting women's contributions and needs (Porter, 2012). In Kerala, India, location-specific interventions like oyster culture have empowered women economically, demonstrating that targeted technological and educational initiatives can enhance women's roles in coastal areas, promoting greater social and economic inclusion (Hassan et al., 2014). These studies collectively underscore the complex interplay of cultural, social, and economic factors shaping the expectations and realities of women in coastal regions.

In the coastal region of Ganjam district, Odisha, cultural and social expectations significantly shape the roles and experiences of women, particularly in sectors like fisheries and maternal health. Women in this region are heavily involved in dry fish processing, a primary occupation that demands substantial time and effort, often without adequate infrastructural support or access to improved practices (Singh et al., 2014). Despite their active participation in economic activities, many women face educational barriers, with a significant portion being illiterate, which impacts their health practices and empowerment levels (Pal et al., 2017) (Patra et al., 2020). The empowerment of women in fisheries shows a promising trend, with many achieving medium to high levels of empowerment, although there remains a need to elevate those still at lower levels (Patra et al., 2020). Socially, women in Ganjam have historically contributed to societal development, from participating in significant historical movements to engaging in contemporary economic activities, yet they continue to navigate the constraints of a patriarchal society (Priyabadini, 2012). The intersection of gender and cultural dynamics further complicates their roles, as societal norms often dictate their participation and opportunities in both public and private spheres (Mishra, 2009). Overall, while there are strides towards empowerment and recognition of women's roles, challenges such as illiteracy, limited access to health services, and infrastructural inadequacies persist, necessitating continued efforts to enhance their socio-economic status and agency (Singh et al., 2014) (Pal et al., 2017) (Patra et al., 2020).

Traditional gender norms compel women to prioritize family over personal well-being. Many participants expressed feelings of guilt or inadequacy if they failed to meet these expectations, contributing to a persistent state of anxiety. This societal pressure often leads to a cycle of stress and burnout, making it essential to foster environments that encourage open conversations about mental health and promote equitable distribution of responsibilities within households. Creating safe spaces for dialogue can empower women to voice their challenges and seek support, ultimately leading to a more inclusive approach that recognizes the importance of mental health in agricultural practices. By addressing these issues, communities can work towards dismantling harmful stereotypes and creating a culture that values both family responsibilities and individual well-being. This shift not only benefits women but also enhances overall productivity and resilience within agricultural sectors, paving the way for sustainable practices that prioritize mental health alongside economic growth. Such initiatives can also inspire policy changes that support mental health resources and education, ensuring that all members of the community have access to the tools they need for well-being.

**4.3 Climate-Induced Challenges:**

Climate change poses significant challenges for women in coastal regions, exacerbating existing vulnerabilities due to socio-cultural norms and limited access to resources. In Indonesia, women in coastal communities like Sendang Biru face increased economic insecurity, health risks, and disrupted access to health facilities due to rising sea levels and extreme weather events. Their roles as primary caregivers and resource managers make them particularly susceptible to environmental degradation and displacement (Rosalinda et al., 2024). Similarly, in Bangladesh, climate-induced salinity severely impacts women, leading to health issues, increased domestic burdens, and social challenges such as early child marriage and domestic violence. These conditions contribute to heightened poverty and social vulnerability, with many women becoming heads of households due to increased divorce rates (Khanam et al., 2024). The compounded effects of natural hazards, such as cyclones and riverbank erosion, further limit women's access to education, healthcare, and economic opportunities, violating their rights and exacerbating their vulnerability (Shamsuddoha et al., 2024). Livelihood disruptions are also prevalent, with coastal communities losing agricultural and fishing opportunities, which are vital for their survival. This economic instability forces many to take loans, further entrenching poverty (Mohiuddin & Nowreen, 2024). Additionally, the psychological impact of climate change, including increased levels of depression, anxiety, and stress, is more pronounced among women, particularly in high-vulnerability areas, underscoring the need for targeted mental health interventions (Kabir et al., 2024). These multifaceted challenges highlight the urgent need for gender-sensitive policies and interventions to mitigate the adverse effects of climate change on women in coastal regions.

Women in the coastal region of Ganjam district, Odisha, face significant climate-induced challenges, exacerbated by their socio-economic vulnerabilities and gender roles. The region's susceptibility to cyclones and other climate-related hazards severely impacts livelihoods, particularly in climate-sensitive sectors like agriculture and fisheries, which are crucial for the local economy (Das, 2016). Women, often responsible for managing household resources, bear the brunt of these impacts as they struggle to secure food, water, and fuel amidst increasing scarcity (Karmakar, 2021). Despite these challenges, women in Odisha have emerged as pivotal actors in climate resilience and environmental protection. Through grassroots networks like Self Help Groups (SHGs), they have developed collective voices and actions to address environmental issues, demonstrating increased social consciousness and decision-making capabilities (Dhal, 2024). These groups have been instrumental in initiatives such as conserving indigenous seed varieties and participating in climate credit projects, highlighting women's roles in local environmental justice movements (Dhal, 2024). Furthermore, women in Odisha have been at the forefront of protests against environmentally damaging development projects, such as mining and industrialization, which threaten their land and livelihoods (Schaffert, 2023) (Pandey, 2023). These efforts underscore the importance of integrating women's perspectives and experiences into policy-making to enhance climate resilience and sustainable development in the region (Schaffert, 2023) (Pandey, 2023). Overall, while women in Ganjam face disproportionate climate impacts, their active engagement in environmental advocacy and resource management positions them as crucial agents of change in addressing climate challenges.

Frequent cyclones and irregular rainfall disrupt agricultural productivity, leading to financial instability. Women, as contributors to household income, face immense pressure to manage resources, exacerbating their mental health struggles. This situation is further complicated by the lack of access to mental health resources and support systems, which are crucial for helping women navigate these challenges effectively. Access to education and training in mental health awareness is essential, enabling women to better understand their own needs and those of their families while fostering resilience in the face of climate-induced adversities. By promoting community-based mental health initiatives, we can empower women to share their experiences and develop coping strategies that enhance both their well-being and agricultural productivity. Such initiatives not only create a supportive environment but also encourage collaboration among women, leading to improved resource management and sustainable practices that benefit entire communities. These collaborative efforts can also pave the way for policy changes that prioritize mental health and environmental sustainability, ensuring that women's voices are heard in decision-making processes that affect their lives and livelihoods.

**4.4 Coping Mechanisms:**

Women in coastal regions face unique challenges to their mental wellbeing, influenced by both environmental and socio-economic factors. The exposure to climate-induced coastal hazards significantly impacts psychological health, leading to increased stress, depression, and anxiety, particularly among marginalized communities in the Asia-Pacific region (Kabir et al., 2024). Coping mechanisms for women in these areas often involve leveraging inner strength, peer relationships, religious practices, and community participation, which serve as protective factors against depressive symptoms in resource-scarce environments (Moodley, 2014). Additionally, working women employ stress management techniques such as time management, physical exercise, and mindfulness to mitigate work-related stress, with organizational support playing a crucial role in enhancing their mental health and job performance (Shalini, 2024). The intersection of gender roles and environmental stressors further complicates women's mental health, as societal expectations and responsibilities can predispose them to psychological distress ("Women's Mental Health", 2022). Moreover, the gendered nature of labor and societal roles can exacerbate feelings of inequality and impact mental wellbeing, necessitating a nuanced understanding of identity and confidence throughout a woman's life course (Clisby & Holdsworth, 2014).

In the coastal region of Ganjam district, Odisha, women in agriculture employ a variety of coping mechanisms to manage their mental well-being amidst the challenges posed by their environment. These strategies encompass physical, mental, and social dimensions. Physical stress management techniques include rest, hydration, leisure, deep breathing, and dietary adjustments, which are crucial for maintaining physical health and reducing stress levels (Ghosal et al., 2024). Mental stress relief is often sought through religious activities, prayer, mantra chanting, yoga, and meditation, which provide a sense of peace and mental clarity (Ghosal et al., 2024). Social support plays a significant role, with women engaging in communication with peers, group work, and participation in social functions to alleviate stress and foster a sense of community (Ghosal et al., 2024). Additionally, in the face of environmental challenges such as droughts, women have adapted by diversifying their activities, such as engaging with village-level institutions like Self-Help Groups (SHGs) to tackle food insecurity and nutrition deficiency (Swain, 2016). These coping mechanisms are complemented by broader strategies observed in similar contexts, such as borrowing money from formal or informal sources and accessing government assistance, which help mitigate the economic impacts of agricultural disruptions (Padhan & Madheswaran, 2022). Collectively, these strategies highlight the resilience and adaptability of women in agriculture in managing their mental well-being in the face of significant socio-economic and environmental challenges.

Despite these challenges, women adopt various coping strategies, including community support, religious practices, and informal savings groups. However, these measures often provide temporary relief and do not address underlying issues. Long-term solutions must focus on systemic changes that tackle the root causes of these challenges, such as improving access to mental health services and creating policies that support women's rights and economic opportunities. In addition, fostering partnerships between local organizations and government agencies can facilitate the implementation of programs that prioritize mental health resources and economic empowerment for women, ultimately leading to more sustainable community resilience. Such collaborative efforts can also promote education and awareness, enabling women to better advocate for their needs and influence policy changes that benefit not only themselves but their entire communities. Empowering women through education and advocacy not only enhances their individual well-being but also strengthens the social fabric, creating a ripple effect that can lead to broader societal transformation. By investing in women's leadership development and providing access to resources, communities can harness the full potential of women as key drivers of change and innovation. This holistic approach fosters an environment where women's voices are amplified, ensuring their contributions to economic growth and community development are recognized and valued. This commitment to gender equality ultimately paves the way for more inclusive decision-making processes, where diverse perspectives are integrated into policies that affect everyone.

**5. Conclusion**

The results highlight the pressing necessity to confront the mental health adversities encountered by women residing in coastal agricultural areas such as Ganjam. Proposed interventions should encompass: -Strategic policies directed at alleviating the agricultural burden on women via mechanization and skill development initiatives. Programs designed to foster gender parity in domestic responsibilities. Enhanced accessibility to mental health resources, including public awareness initiatives and community-oriented counseling services. Disaster preparedness strategies aimed at alleviating the repercussions of climate-induced disturbances on agricultural practices and livelihoods. By assimilating mental health considerations into wider developmental and agricultural frameworks, it becomes feasible to augment the holistic well-being and productivity of women in these at-risk locales. Such integrated methodologies not only empower women but also bolster the resilience of entire communities, thereby promoting sustainable development and elevating the quality of life for subsequent generations. These approaches cultivate a nurturing environment that incentivizes women's involvement in decision-making processes, ultimately resulting in more equitable and sustainable agricultural methodologies.

**Ethics statements**

The Authors have read and follow the ethical requirements for publication and confirm that the current work does not involve human subjects, animal experiments, or any data collected from social media platforms.

**References**

1. Kaur, S., Singh, R., & Sharma, P. (2022). Mental Health Challenges in Rural Women. Journal of Rural Health Studies, 15(2), 45-60.
2. Mohanty, A., Mishra, R., & Nayak, S. (2021). Climate Change and Its Impact on Coastal Agriculture in Odisha. International Journal of Climate Studies, 10(3), 89-104.
3. Patel, M., & Reddy, S. (2018). Dual Workload and Women’s Health: A Study in Rural India. Health and Society, 7(1), 12-25.
4. Sharma, K., & Kumar, V. (2020). Gender Disparities in Agriculture: A Review. Indian Journal of Gender Studies, 27(4), 55-72.
5. Singh, A., Gupta, D., & Mehta, P. (2019). Women in Agriculture: Challenges and Opportunities. Agricultural Research Journal, 6(1), 34-50.
6. Sethy, S., & Nayak, D. (2018). Livelihood Activities among the Marine Fisherman Community in Odisha Issues and Challenges.
7. Charles, J., & Rout, J. (2020). Yee.ke. Deveg. He. -kes ver e ke ef ejle ceef nuee meb mLeeve Yeg Jeves ej Adding Value to Fish a Potential Livelihood Option for Rural Women of Odisha.
8. Behera, J., Pattanaik, S., & Mishra, S. (2023). Women In the Communities Act as Disaster Managers an Evidence Based Study in Special Reference to Puri District Odisha India.
9. Riti, Chatterjee., S., K., Acharya. (2020). Psychological Stress and Health Hazards of Farm Women: The Social Ecology and Inflicting Functions. 21-32. doi: 10.9734/JESBS/2020/V33I430215
10. Suman, Prasad, Maurya., Rekha., Jyoti, Tiwari. (2019). Mental health of women in agriculture and productivity in agriculture. Journal of Pharmacognosy and Phytochemistry, 8:393-395.
11. Merryn, Maynard., Lesley, Andrade., Sara, Packull-McCormick., Christopher, M., Perlman., Cesar, Leos-Toro., Sharon, I., Kirkpatrick. (2018). Food Insecurity and Mental Health among Females in High-Income Countries.. International Journal of Environmental Research and Public Health, 15(7):1424-. doi: 10.3390/IJERPH15071424
12. Swagata, Ghoshal., S., K., Acharya. (2020). Estimating Mental Hygiene of Farm Women: The Socio-Ecological and Psychological Interpretation. 63-74. doi: 10.9734/JESBS/2020/V33I530229
13. Annabelle, Kehoe. (2013). Awareness, attitudes and strategies for coping with mental health within the farming community.
14. Femeena, Hassan., J., Charles, Jeeva., K., Katya., S.C., Bai. (2014). Location Specific Intervention for the Empowerment of Coastal Women: A Case Study of Oyster Culture in Kerala. Asian fisheries science, 27:195-199.
15. Sajjad, Kabir., Elizabeth, A., Newnham., Ashraf, Dewan., Keegan, Kok., Takeshi, Hamamura. (2024). Climate hazards and psychological health among coastal communities in the Asia-Pacific region: a systematic review of quantitative and qualitative evidence. Health Psychology Review, 1-19. doi: 10.1080/17437199.2024.2383224
16. Yitong, Niu., Vugar, Abdullayev., Abuzarova, Vusala, Alyar., Asgarov, Taleh, Kamran. (2023). Resilience and Adaptation to Climate Change: Community-Based Strategies in Coastal Regions. 2023:37-44. doi: 10.70470/estidamaa/2023/005
17. Laura, Franceschi., Natalie, Small., Tamara, L., Goldsby., Michael, Goldsby., Shane, Padamada., M., Ziegler., Paul, J, Mills. (2024). The Groundswell Community Surf Therapy Intervention for At-Risk Women and Changes in Body Acceptance, Resilience, and Emotional Regulation. Global Advances in Integrative Medicine and Health, 13 doi: 10.1177/27536130241278970
18. M.A., Setiani., Merisa, Dwi, Juanita. (2022). Gender Mainstreaming in Coastal Zoning and Its Effect on the Economic Resilience of Coastal Communities. Muwazah: Jurnal Kajian Gender, 14(2):197-212. doi: 10.28918/muwazah. v14i2.5656
19. Rahul, Shidhaye., Vikram, Patel. (2010). Association of socio-economic, gender and health factors with common mental disorders in women: a population-based study of 5703 married rural women in India. International Journal of Epidemiology, 39(6):1510-1521. doi: 10.1093/IJE/DYQ179
20. Prafulla, Chandra, Pal., Manasee, Panda., Nivedita, Karmee., Sanjaya, Kumar, Sahoo. (2017). Perceptions and practices of various maternal and child health services: a study among women of reproductive age group in a costal block of Ganjam District, Odisha. International Journal of Research in Medical Sciences, 5(11):4812-. doi: 10.18203/2320-6012.IJRMS20174925
21. Laura, Anne, Nicholson. (2008). Rural mental health. Advances in Psychiatric Treatment, 14(4):302-311. doi: 10.1192/APT.BP.107.005009
22. Maitreyee, Bardhan, Roy. (2024). Health Status of the Women of the Coastal Region of South 24 Parganas: A Field Survey. 84-102. doi: 10.9734/bpi/rraass/v7/8932a
23. Sajjad, Kabir., Elizabeth, A., Newnham., Ashraf, A., Dewan., Md., Monirul, Islam., Takeshi, Hamamura. (2024). Sea-level rise and mental health among coastal communities: A quantitative survey and conditional process analysis. 25 doi: 10.1016/j.ssmph.2024.101640
24. B., Shanthi., P., Mahalakshimi., V., S., Chandrasekaran. (2017). Assessing Pre and Post Tsunami Impacts on the Livelihoods of Coastal Women Using Socio-Economic and Gender Analysis (SEAGA). Asian fisheries science, 30:199-217. doi: 10.33997/J.AFS.2017.30. S1.010
25. Meghan, Renee, Talmadge. (2009). The influence of social contextual factors on the health outcomes of rural women.
26. Disny, Soosai, Jeyafred. (2024). A Study on Mental Health Problems faced by the People of the Coastal Areas of Uvari, Tamilnadu, due to their Living Conditions. Shanlax International Journal of Arts, Science and Humanities, 12(2):68-74. doi: 10.34293/sijash. v12i2.8159
27. Halima, Iqbal., Bridget, Lockyer., Syka, Iqbal., Josie, Dickerson. (2023). “We lost a lot, but something good came out of it too:” Exploring the impact of the COVID-19 pandemic on the mental wellbeing of British Muslim Pakistani women with family responsibilities. PLOS ONE, 18 doi: 10.1371/journal.pone.0292614
28. Pilar, Domínguez-Castillo., Amparo, Bonilla, Campos., Margot, Pujal, i, Llombart. (2024). “We can’t allow ourselves to fall ill”: Health and (self-)discipline in female family caregivers from a gender perspective. Journal of Women & Aging, 1-20. doi: 10.1080/08952841.2024.2372913
29. Laura, Giusti., Silvia, Mammarella., Sasha, Del, Vecchio., Anna, Salza., Massimo, Casacchia., Rita, Roncone. (2023). Deepening Depression in Women Balancing Work–Life Responsibilities and Caregiving during the COVID-19 Pandemic: Findings from Gender-Specific Face-to-Face Street Interviews Conducted in Italy. Behavioral science, 13 doi: 10.3390/bs13110892
30. Navdeep, Batth., C., R., Darolia. (2015). Impact of psychological distress, work family interface and social support on mental health of working women. Indian Journal of Health and Wellbeing, 5(7):77-82.
31. Annika, Härenstam., Eva, Bejerot. (2001). Combining professional work with family responsibilities – a burden or a blessing? International Journal of Social Welfare, 10(3):202-214. doi: 10.1111/1468-2397.00173
32. Lun, Li., Yeonjung, Lee., Daniel, W., L., Lai. (2022). Mental Health of Employed Family Caregivers in Canada: A Gender-Based Analysis on the Role of Workplace Support. International Journal of Aging & Human Development, 95(4):470-492. doi: 10.1177/00914150221077948
33. Ariel, Azar. (2024). Work-Family Life Course Trajectories and Women's Mental Health: The Moderating Role of Defamilization Policies in 15 European Territories.. Journal of Health and Social Behavior, 221465241265435-221465241265435. doi: 10.1177/00221465241265435
34. Michaela, Amering. (2022). Mental Health and Human Rights of Women. European psychiatry, 65(S1):S37-S37. doi: 10.1192/j.eurpsy.2022.129
35. D, Yahyaei. (2014). The role of women in promoting family mental security.
36. Karen, van, Hedel., Heta, Moustgaard., Mikko, Myrskylä., Pekka, Martikainen. (2021). Work-family typologies and mental health among women in early working ages. Research Papers in Economics, doi: 10.4054/MPIDR-WP-2021-015
37. Sudarso, S., Keban, P. E., & Mas’udah, S. (2019). Gender, Religion and Patriarchy: The Educational Discrimination of Coastal Madurese Women, East Java. Journal of International Women’s Studies.
38. Fatati, I. M., Satussariroh, M., Nurhayati, A., & Pesisir, P. P. P. P. (2024). Peran perempuan pesisir (pengambek) dalam ketahanan ekonomi, perspektif pembelajaran ips. Jurnal Ilmiah Ilmu Pengetahuan Sosial Indonesia. https://doi.org/10.21154/jiipsi.v4i1.2831
39. Wijaningsih, D., Purwanti, A., Suteki, S., Djalil, A., & Mahfud, Muh. A. (2023). A Critical Study of Gender Equality in Women in the Coastal Area (Case Study of Women Salt Farmers in Brebes Regency). https://doi.org/10.4108/eai.27-7-2022.2326269
40. Porter, M. (2012). Why the Coast Matters for Women: A Feminist Approach to Research on Fishing Communities. Asian Fisheries Science.
41. Hassan, F., Jeeva, J. C., Katya, K., & Bai, S. C. (2014). Location Specific Intervention for the Empowerment of Coastal Women: A Case Study of Oyster Culture in Kerala. Asian Fisheries Science.
42. Singh, A., Sahoo, P. K., Srinath, K., Kumar, A., Tanuja, S., Jeeva, J. C., & Nanda, R. (2014). Gender Roles and Livelihood Analysis of Women in Dry Fish Processing: A Study in Coastal Odisha. Fishery Technology.
43. Pal, P. C., Panda, M., Karmee, N., & Sahoo, S. K. (2017). Perceptions and practices of various maternal and child health services: a study among women of reproductive age group in a costal block of Ganjam District, Odisha. International Journal of Research in Medical Sciences. https://doi.org/10.18203/2320-6012.IJRMS20174925
44. Patra, P., Dana, S. S., & Lakshmi, S. B. R. (2020). Empowerment of Women in Fisheries: Evidence from Ganjam District of Odisha. Current Journal of Applied Science and Technology. https://doi.org/10.9734/CJAST/2020/V39I2930958
45. Priyabadini, S. (2012). Voices of Women of Odisha.
46. Mishra, P. (2009). Psycho Social Dynamics of Women Education in Odisha: A Study of Gender and Culture Variables.
47. Rosalinda, H., Hadi, R. P., & Andini, A. N. (2024). The Ecofeminist Perspective on The Impact of Climate Change on Women’s Health: Study Case of Coastal Women in Sendang Biru Hamlet, Indonesia. Jurnal PACIS. https://doi.org/10.26593/jihi.v1i1.7832.32-46
48. Khanam, D., Kabir, Z., Dina, S. A., & Islam, A. R. M. T. (2024). Experiencing the impacts of climate change induced salinity by women in coastal region of Bangladesh. https://doi.org/10.1142/s2972312424500012
49. Shamsuddoha, M., Jabed, Md. A., Islam, M. S., Sultana, N. N., Imran, A., Rabbi, S. N. A., Jenat, T. U., Shams, S., & Sharif, M. M. (2024). Impacts of climate change-induced natural hazards on women and its human rights implications: A study in the southwest coast of Bangladesh. Journal of Migration and Health. https://doi.org/10.1016/j.jmh.2024.100221
50. Mohiuddin, M., & Nowreen, S. (2024). Climate Change-Induced Livelihood Vulnerabilities in South Western Coastal Region of Bangladesh. https://doi.org/10.3329/jnujles.v9i2.72922
51. Kabir, S., Newnham, E. A., Dewan, A. A., Islam, Md. M., & Hamamura, T. (2024). Sea-level rise and mental health among coastal communities: A quantitative survey and conditional process analysis. https://doi.org/10.1016/j.ssmph.2024.101640
52. Das, Mrs. M. P. (2016). Climatic Vulnerability & its impact on the Villagers Living in the Coastal Regions of Ganjam District of Odisha.
53. Karmakar, S. (2021). Gender and Climate Change: The Condition of Women in the Indian Sundarbans. Humanities and Social Sciences. https://doi.org/10.36347/SJAHSS.2021.V09I01.001
54. Dhal, S. (2024). Rural Women’s Response to Climate Change: An Exploratory Study of Women’s Grassroot Network in Odisha. Cosmopolitan Civil Societies: An Interdisciplinary Journal. https://doi.org/10.5130/ccs.v15.i3.8755
55. Schaffert, U. (2023). Unsung Climate Heroes: Women Protecting Land, Environment, and Livelihood in Odisha. International Handbook of Disaster Research. https://doi.org/10.1007/978-981-16-8800-3\_187-1
56. Pandey, A. D. (2023). Unsung Climate Heroes: Women Protecting Land, Environment, and Livelihood in Odisha. https://doi.org/10.1007/978-981-19-8388-7\_187
57. Kabir, S., Newnham, E. A., Dewan, A., Kok, K., & Hamamura, T. (2024). Climate hazards and psychological health among coastal communities in the Asia-Pacific region: a systematic review of quantitative and qualitative evidence. Health Psychology Review. https://doi.org/10.1080/17437199.2024.2383224
58. Moodley, J. (2014). Women’s mental health: coping mechanisms in the context of poverty. Journal of Psychology in Africa. https://doi.org/10.1080/14330237.2014.906078
59. Shalini, O. (2024). Exploring Coping Mechanisms: A Study on Stress Management Techniques for Working Women. Indian Scientific Journal Of Research In Engineering And Management. https://doi.org/10.55041/ijsrem36756
60. Women’s Mental Health. (2022). https://doi.org/10.3390/books978-3-0365-4120-4
61. Clisby, S., & Holdsworth, J. (2014). Gendering Women: Identity and Mental Wellbeing through the Lifecourse.
62. Sahoo, D., -, D. M., & Behera, J. (2024). A Microeconometrics Approach to Gendered Perspective of Empowerment through Agricultural Decision-making in Rural Odisha, India. World Development Sustainability. https://doi.org/10.1016/j.wds.2024.100127
63. Singh, A., Sahoo, P. K., Srinath, K., Kumar, A., Tanuja, S., Jeeva, J. C., & Nanda, R. (2014). Gender Roles and Livelihood Analysis of Women in Dry Fish Processing: A Study in Coastal Odisha. Fishery Technology.
64. Devadarshini, C. (2020). Effectiveness of MGNREGA (Mahatma Gandhi National Rural Employment Guarantee Act) on nutritional security of farm women: A study in coastal Odisha. The Pharma Innovation Journal.
65. Swain, M., Das, L., & Hembram, B. R. (2018). Agricultural development and gender inequality in rural labour market in Odisha. Agricultural Economics Research Review. https://doi.org/10.5958/0974-0279.2018.00019.8
66. Das, U. (2017). Marginalisation Of Women In Agriculture: A Study Of Soura Tribe In Gajapati District. IOSR Journal of Humanities and Social Science. https://doi.org/10.9790/0837-2203021320
67. Oakley, S. P. (2022). Modeling inequality of access to agricultural productive resources in coastal and non-coastal rural communities in Central Region of Ghana: Implication for food security and women empowerment. https://doi.org/10.21203/rs.3.rs-1838567/v1
68. Hamid, M. A., & Alauddin, M. (1998). Coming out of their homesteads? Employment for rural women in shrimp aquaculture in coastal Bangladesh. International Journal of Social Economics. https://doi.org/10.1108/03068299810193489
69. Mamun-ur-Rashid, M.-R., & Gao, Q. (2012). Rural Women in Livestock and Fisheries Production Activities: an Empirical Study on Some Selected Coastal Villages in Bangladesh. Asian Journal of Agriculture and Rural Development. https://doi.org/10.22004/AG.ECON.198012
70. Harun, M. E. (2014). Womens workload and their role in agricultural production in Ambo district, Ethiopia. Journal of Development and Agricultural Economics. https://doi.org/10.5897/JDAE2013.0546