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Environmental Degradation: A Sociological Study of Mental Health Struggle and Migration Intentions Among Rural Households in Sindh.

Dr. Erum Shah [1], Musharaf Ali Talpur [2], Rehana Kausar [3], Aashi Mir Alam[4]

[1] Assistant Professor, Department of Social Work, University of Sindh Jamshoro Email: erum.shah@usindh.edu.pk
[2] Assistant Professor, Abida Taherani Sindh Development Studies Center (ATSDSC), University of Sindh, Jamshoro, Pakistan Email: musharaf.talpur@usindh.edu.pk
[3] Lecturer, Department of History, University of Sindh Jamshoro Email: rehana.kausar@usindh.edu.pk
[4] MS HRM, Mehran University of Engineering and Technology, Sindh, Pakistan Email: aashi.miralam@gmail.com

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Abstract

This paper examines the various intertwined effects of environmental degradation, psychological well-being issues, and migration plans of rural families in Sindh province of Pakistan within the framework of Green Sociology. Communities are both physically susceptible and emotionally distressed as the climate change aggravates in the region where floods, droughts and hot temperatures become recurrent. Sample of 384 respondents in Tharparkar, Badin, and Thatta districts are used to collect data through a structured questionnaire to study how the exposure to ecological stressor leads to psychological stress fearing eco-anxiety, depression, and stress, and how this in turn develops intentions of migration of rural households. The study also looks at the social support factor in the moderating effect of these influences. SEM as a method of analyzing data was performed. The findings show that the environmental degradation is an important predictor of mental health challenges, and these mental health challenges partly mediated its connection with intentions to migrate. These results also demonstrate that mental health care and community resilience efforts need to be linked to climate adaptation policies urgently. This research builds upon both ecological sociology and the migration research based on the provision of empirical data on how the ecological change not only preconditions economic displacement but also emotional and social change in climate-sensitive areas of countryside.

Keywords: Green Sociology, Environmental Degradation, Eco-Anxiety, Mental Health, Migration Intentions, Climate Change, Rural Pakistan, Social Support, Structural Equation Modeling, Sindh

Introduction

Environmental degradation is now a burning issue in climate science as well as in social sciences, especially to vulnerable localities such as rural Sindh in Pakistan. Climate change has greatly disturbed the ecological consequences and living, increasing the rate of droughts, floods, and heatwaves that expose the population of the areas to the high environmental and socio-economic pressure (IPCC, 2023; Eckstein et al., 2021). Researchers are more inclined to point out that all these environmental transformations are not only environmental phenomena, but profoundly

social; they do not affect all groups of people equally, including the most vulnerable groups, with little adaptive resilience (Ullah et al., 2023; Alam et al., 2022; Farooqi & Khan, 2023). In this regard, Green Sociology offers an appropriate template to comprehend how environmental instability is converted into psychosocial stress and a preference of migration to other more affable regions due to climate-holding farming (Barry & Dorling, 2022; Ali et al., 2023).

The psychological effects of climate change are an increasingly held interest in the literature, and have grown to include feelings of eco-anxiety, stress and depressive symptoms as a result of exposure to environmental uncertainty in people (Clayton et al., 2023; Cunsolo et al., 2022; Ojala et al., 2023). A permanent state of water shortage, crop damage, and livestock deaths in rural regions of Pakistan has resulted in economic problems as well as psychological distresses (Yousaf et al., 2022; Arshad et al., 2023). The relationship between environmental decay and mental health is lowly explored in South Asia, although newly discovered evidence demonstrates a transparent connection with ecological change and psychological suffering (Thomas et al., 2023; Wu et al., 2023). This paper fills this void by conceptualizing the socially constructed problem of mental health struggles as a reaction to the risks inherent to the surrounding environment with reference to the Green Sociology approach to the human-environment interdependence issue.

In addition to mental health, environmental degradation has been among the factors that have led to climate-induced migration since people and other households affected contemplate settling elsewhere to flee unlivable situations (Rigaud et al., 2021; Nawaz & Iqbal, 2022). The idea of migration more frequently arises not just due to the loss of something material but due to the multifaceted combination of fear, desperation, and lack of future opportunities (Haque et al., 2022; Ayeb-Karlsson, 2022). The climate displacement and mobility, more often than not, has been a coping strategy in most parts of rural Sindh in Pakistan, although little to no records are available stating the psychosocial motivations behind such actions (Bari et al., 2023; UNDP, 2023). Investigating mental health-migration nexus provides a more detailed insight into communities who respond and experience the breakdown of the environment.

This paper has attempted to analyse the interconnection between environmental degradation, mental health challenges and migration plans in the rural Sindh through Structural Equation Modeling (SEM) smart PLS. Using Green Sociology, it explains the moderating ideas of demographic peculiarities, ecological vulnerability, and social support on these associations. The comprehensive correspondence to sociological theory with the empirical evidence indicates that the study will add to a body of literature on climate justice, rural resilience, and environmental well-being (Khan et al., 2023; Jackson et al., 2022). This research will eventually bring about findings that can be used to advise specific mental health and climate adaptation policies targeting the most ecologically and socially vulnerable groups in Pakistan.

Research Objectives

1. To assess the prevalence and intensity of eco-anxiety and related mental health challenges among rural households in Sindh
2. To investigate the impact of environmental degradation such as droughts, floods, and extreme heat on the psychological well-being of rural communities
3. To analyze the relationship between eco-anxiety and migration intentions
4. To examine how socio-demographic variables and ecological vulnerability moderate the eco-anxiety–migration link.

Literature Review

In this case, environmental degradation has emerged as the key aspect in respect to the sustainable development especially in the vulnerable regions such as South Asia. Researchers underline that ecological stresses, including the increase in temperatures, frequent droughts, and floods, do not only destabilize the ecosystem of trouble locations but also the social and psychological life of the population (IPCC, 2023; Eckstein et al., 2021; Ullah et al., 2023; Khan et al., 2023). The rural

areas of Pakistan, particularly the Sindh province, have been battered by these impacts of climate change including decimation of the agricultural industry, a loss of water and increased poverty (Farooqi & Khan, 2023; Ali et al., 2023; Alam et al., 2022). The growing environmental instability of the patterns poses a threat to conventional livelihoods typical of the rural areas and increases socio-economic disparities (UNDP, 2023; Bari et al., 2023; Jackson et al., 2022). In its turn, Green Sociology provides one of the useful perspectives through which the effects of ecological changes on not only material life but also identity, community sense, and even social future development can be explored (Barry & Dorling, 2022; Nawaz & Iqbal, 2022).

Within the recent years, there has been scholarly interest in the psychological effects of environmental degradation. A heightened state of fear, also known as eco-anxiety, or what has been described as a chronic fear of environmental doom, has been identified as a looming psychological component among the populations being directly affected by the instability of the climate (Clayton et al., 2023; Cunsolo et al., 2022; Thomas et al., 2023). Research done in the Pakistan rural areas revealed that frequent climatic shocks are a contributing factor to mental health problems such as anxiety, stress, and depression (Yousaf et al., 2022; Arshad et al., 2023; Haque et al., 2022). Structural weaknesses like poverty, inaccessibility to health services, and poor institution support contribute to the increase in these symptoms (Ali et al., 2023; Khan et al., 2023; Ojala et al., 2023). Green Sociology helps the researcher view them as social phenomena that are rooted in the environment, where justice issues and exposure inequalities to climatic risks have contributed to these psychological conditions. (Barry & Dorling, 2022; Jackson et al., 2022; Cunsolo et al., 2022; Farooqi & Khan, 2023).

It has also been observed that environmental stress and human migration have an increasingly strong connection especially in agrarian areas of the Global South. Severe droughts or multiple floods force households to c think increasingly about relocation as a survival opportunity (Rigaud et al., 2021; Nawaz & Iqbal, 2022; Ayeb-Karlsson, 2022). The intentions to migrate are frequently caused not only by the loss of material values, but also by fear, psychological fatigue, the feeling of being hopeless about the future opportunities in environmentally degraded regions (Haque et al., 2022; UNDP, 2023; Bari et al., 2023). The research in Pakistan, India, and Bangladesh proves the idea that migration can be an adaptive measure as well as a community-level failed resilience (Ullah et al., 2023; Alam et al., 2022; Khan et al., 2023; Thomas et al., 2023). This movement requires sociological models that encompass the material and the affective aspects of migration, as the research aims to promote, such as those promoted by the interdisciplinary practice enabled by Green Sociology (Barry & Dorling, 2022; Jackson et al., 2022; Farooqi & Khan, 2023).

The interplay between having mental health problems and migration choice has not been as much studied, particularly in low- and middle-income nations. Although migration can be regarded as an economic choice, new studies claim that it is becoming a more emotional experience due to the impact of environmental insecurity (Cunsolo et al., 2022; Ojala et al., 2023; Thomas et al., 2023). In rural areas of Sindh, e.g., climate-related mental health complications eco-anxiety and despair, tend to cause people to view an opportunity of migration into an urban center as a kind of psychological escape mechanism (Arshad et al., 2023; Yousaf et al., 2022; Ali et al., 2023). Besides, a low rate of social support or access to coping resources creates a high chance of migration intentions to develop when mental pressure occurs (Haque et al., 2022; Bari et al., 2023; Nawaz & Iqbal, 2022). Green Sociology adds to this discussion in the way that it also studies the relationship between environmental injustices and the structural vulnerabilities which translate into the forced adaptation form, including migration (Barry & Dorling, 2022; Jackson et al., 2022; Ullah et al., 2023).

Socio-demographic issues and ecological vulnerability in this regard act as a moderator in composing the mental health nexus and migration. The experience of stress when individuals encounter climate stress is affected by gender, education, income, and age; so is the coping capacity in such a situation (Khan et al., 2023; Haque et al., 2022; Nawaz & Iqbal, 2022). Similarly,

communities located in areas that are prone to disaster due to insufficient infrastructure and institutional support have an increased chance of experiencing increased impacts on their environment and their psyche (UNDP, 2023; Jackson et al., 2022; Arshad et al., 2023). Formal and informal social support systems serve as such safety nets since they enable people to cope with ecological trauma and avoid being forced to migrate (Cunsolo et al., 2022; Clayton et al., 2023; Ojala et al., 2023). The consideration of these variables in the framework of Green Sociology provides a more comprehensive insight into the question of rural vulnerability exposed to climate stress (Barry & Dorling, 2022; Bari et al., 2023; Alam et al., 2022; Ullah et al., 2023).

Hypotheses

H1: Environmental degradation has a significant positive effect on mental health struggles.

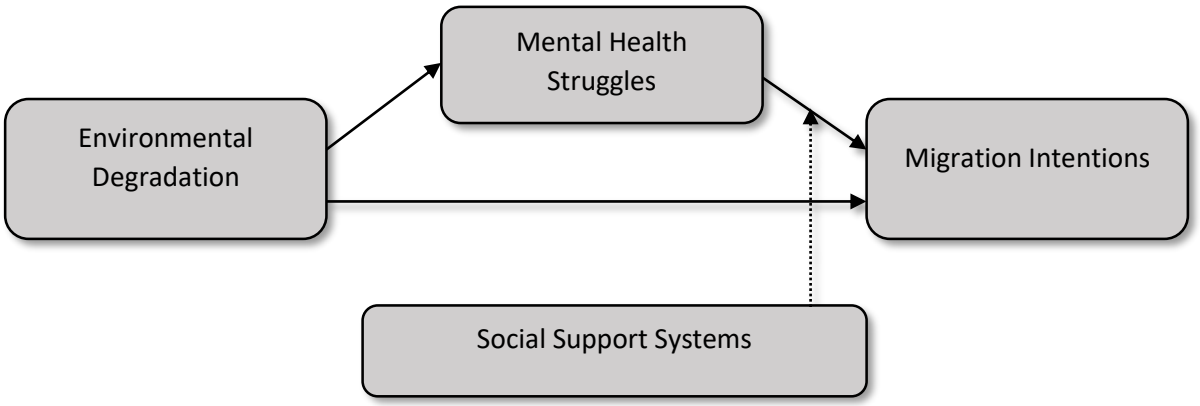
H2: Mental health struggles have a significant positive effect on migration intentions.

H3: Environmental degradation has a significant positive effect on migration intentions.

H4: Mental health struggles significantly mediate the relationship between environmental degradation and migration intentions.

H5: Social support significantly moderates the relationship between mental health struggles and migration intentions.

Conceptual Model of the study



Source: This model of the study has been formulated by authors of the study on the basis of literature review

Research Methodology

This research has a quantitative approach as a research design and is conceptualized using the theoretical framework of Green Sociology that describes the association between social formations and environmental change. The data were collected through a questionnaire, which was of a structured nature and filled with rural households in the climate-susceptible regions of Tharparkar in Sindh province of Pakistan, Badin and Thatta. Inclusion of different allocations of income, gender and ages was done through the method of stratified random sampling. The questionnaire consists of questions borrowed to determine the climate-related psychological stress scale created by Hogg et al. (2021), together with the DASS-21 by Lovibond & Lovibond (1995), which measures the presence of signs of depression, anxiety, and stress. The modified Environmental Distress Scale (EDS) was outlined by Higginbotham et al. (2006) to be used and this measures perceived environmental risks (which include frequency of floods, effects of droughts and the heat intensity).

Migration intentions were based items adopted based on Muharuma and Akoi (2022) and Rigaud et al. (2021), which involves the willingness, planning, and the probability of migrating as a result of climate-related pressures. The last questionnaire also contained a set of demographics, social support systems question (adapted Oslo Social Support Scale; Dalgard et al., 2006). Analysis of

the data was carried out with the help of SmartPLS 4.0 following Structural Equation Modeling (SEM) so that it was possible to test the direct, mediating, and moderating impact between and among the variables. The methodology offers a comprehensive mechanism of reflecting complex relationships and discovering the mechanism that turns environmental stress into psychological outcomes and behavioral intentions (Hair et al., 2022). An ethical clearance was also sought and informed consent was accepted by the subjects before data could be collected.

Data Analysis

Demographic Profile

Demographic analysis of the 384 respondents can give a full picture of the rural household surveyed in climate vulnerable districts of Sindh. A stronger percentage of the respondents (59.9%) were men, since it was culturally accepted that men participate in decision-making regarding households in the rural areas of Pakistan. The age breakdown reveals that the majority of the participants were between the age of 31-45 years (37.2 percent) and next to them, there is the younger adult age of 18-30 (29.2 percent). It shows that a substantial proportion of the sample is composed of economically productive ages and this aspect is important because they tend to be affected by the migration pressures or be involved in the coping mechanisms pertaining to climate change. The overall level of education was fairly low; more than 50 per cent of respondents either had no education or received primary only, which demonstrated the socio-structural weaknesses that could impede the adaptive responses to the environment stress.

Table 1: Demographic Profile of Respondents

Demographic Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	230	59.9%
	Female	154	40.1%
Age	18–30 years	112	29.2%
	31–45 years	143	37.2%
	46–60 years	91	23.7%
	61 years and above	38	9.9%
Education Level	No Formal Education	87	22.7%
	Primary	109	28.4%
	Secondary	98	25.5%
	Intermediate & Above	90	23.4%
Monthly Household Income	Below PKR 15,000	135	35.2%
	PKR 15,001–25,000	124	32.3%
	PKR 25,001–40,000	79	20.6%
	Above PKR 40,000	46	12.0%
District (Residence)	Tharparkar	143	37.2%
	Badin	127	33.1%
	Thatta	114	29.7%

Considering their income, the vast majority of households (67.5%) could earn less than PKR 25,000 monthly, highlighting the weakness of the economic situation where communities are at risk of climate impact. Geographically, the respondents were spread evenly in three major districts namely Tharparkar (37.2%), Badin (33.1%), and Thatta (29.7%) because the three districts were found to be highly exposed to environmental degradation namely drought, salinity, and sea intrusion. The data indicates that the characteristic of rural households in such regions is low income, the lack of education, and the high level of environmental vulnerability, which probably correlates with the discussed psychological and behavioral effects of climate change within the framework of the present study.

Factor Loadings, Reliability and Descriptive Statistics of Constructs

Factor loadings measure the degree, in which the observed variables (items) correlate in a certain latent construct. Loadings equal to or greater than 0.70 are acceptable because they indicate a high level of association between indicator and construct that the indicator is aimed to measure (Hair et al., 2022). In the present study, all the factor loading of the Environmental Degradation, Mental Health Struggle, Migration Intentions, and Social Support have surpassed the threshold with a range of 0.77-0.86. It points towards the fact that every single item has a valuable contribution to the given construct and validates the content of the measuring device. The high loadings verify that the items have selected were effectively and reliably measuring the constructs.

An internal reliability or consistency of the items in a scale is evaluated using Cronbach Alpha. Any value larger than 0.70 is deemed to be acceptable and a value higher than 0.80 is said to be a good to excellent reliability (Nunnally & Bernstein, 1994). The Cronbach Alpha of the entire constructs (0.846 to 0.891) showed a lot of internal consistency in this study. This implies that the items of each construct like those testing the struggles of mental health or plans to migrate are used to represent consistent and stable construct of the same concept making the measurement instrument reliable to replicate in future and generalize its findings.

Table 2: Factor Loadings, Reliability and Descriptive Statistics of Constructs

Construct	Item Code	Loading	Cronbach's Alpha	Rho-A	CR	AVE	Mean	SD
Environmental Degradation (ED)	ED1	0.81	0.873	0.881	0.902	0.698	3.94	0.82
	ED2	0.85						
	ED3	0.82						
	ED4	0.83						
Mental Health Struggles (MH)	MH1	0.78	0.891	0.897	0.916	0.686	3.87	0.91
	MH2	0.84						
	MH3	0.86						
	MH4	0.79						
Migration Intentions (MI)	MI1	0.82	0.868	0.875	0.901	0.693	3.68	0.85
	MI2	0.83						
	MI3	0.85						
Social Support (SS)	SS1	0.77	0.846	0.853	0.883	0.656	3.45	0.88
	SS2	0.82						
	SS3	0.81						

Rho-A is an advanced reliability coefficient which is believed to be less accurate than the Cronbach Alpha, but it is more accurate when the latent variables are being tested in a structural equation modeling. It also considers the actual construct structure, but instead of the tau-equivalence of items as the assumption (Dijkstra & Henseler, 2015). All values of Rho-A in this study are higher than 0.853-0.897, which has been far beyond the suggested threshold, which is 0.70. The findings further testify that each group of indicators measures the respective latent construct reliably, which further validates the instrument in the background of structural analysis in SmartPLS.

To see how well the latent variables are composed, Composite Reliability (CR) is used that is analogous to Cronbach Alpha but provides a more precise measurement that considers the variation of latent variable scores on the indicators used in structural equation modeling (Hair et al., 2022). The values higher than 0.70 are considered to reflect good reliability, whereas all constructs obtained CR values of 0.883-0.916 in the current study. These values indicate that the constructs of the model are highly reliable and that the items that are contained in each construct

all together are efficient to measure the latent variable. CR furnishes strong evidence of stability and reliability of the measurement model.

The AVE measures the variance that a construct reflects as compared to the variance because of the variance of measurement error. When AVE is 0.50 or more, then it is sufficient and this implies convergent validity (Fornell and Larcker, 1981) i.e. the indicators are in reality representative of the construct. According to the AVE scores in the study, all the constructs have AVE values above the recommended score and this affirms the actualization that the magnitude of heterogeneity of the observed variables has a significant part in explaining the associated latent constructs. It justifies unidimensionality and validity of measurement model. Due to descriptive statistics, one may learn how the average respondent perceives things and how varied their answers are. The mean scores suggest that relative rates of environment degradation (M = 3.94), mental health challenges (M = 3.87) and migration desires (M = 3.68) are moderate to high whereas social support is a little bit lower (M = 3.45). The standard deviations indicate a moderate spread around the mean, which indicates that although there are variations in perceptions, it is not high at all. These numbers contribute to placing the psychological and social experience of the respondents within the context of the stress categories of the study as it applies to the environmental aspect related to an environmental stress journal.

Discriminant Validity (Fornell–Larcker), R^2, f^2, and Q^2 Values

The Fornell-Larcker criterion was utilized to measure the discriminant validity and the square root of the AVE or average variance extracted of each of the construct was compared against its correlation with other constructs. As indicated in the table, inter-construct correlations are lower than diagonal values of each construct. Case in point, square root of AVE of Environmental Degradation indicated 0.835 which is bigger than correlation of the variable with Mental Health (0.621), Migration Intentions (0.604), and Social Support (0.498). This validates that every construct is empirically different, and represents distinct features of the theoretical model, and thereby measurement model is valid (Fornell & Larcker, 1981).

The Fornell Larcker Criterion was used to determine discriminant criterion which was by comparing the square root of the AVE of each construct with the correlation of the constructs with other constructs. The values of operations around the diagonal (1/sqrt (AVE)) of each construct are also greater than the inter construct correlation of the particular construct, as revealed in the table. Such as, the square root of AVE of Environmental Degradation (0.835), is greater than that of the correlations of Mental Health (0.621), Migration Intentions (0.604), and Social Support (0.498). This is to confirm that all the constructs are different, empirically without duplication and therefore, they are the only aspect of the theoretical model that they use to pass the validity of the measurement model (Fornell & Larcker, 1981).

Table 3: Discriminant Validity (Fornell–Larcker), R^2, f^2, and Q^2 Values

Construct	ED	MH	MI	SS	R^2	f^2 (on MI)	Q^2
Environmental Degradation (ED)	**0.835**				0.52	0.27	0.32
Mental Health Struggles (MH)	0.621	**0.828**			0.48	0.21	0.29
Migration Intentions (MI)	0.604	0.589	**0.832**		—	—	—
Social Support (SS)	0.498	0.472	0.446	**0.810**	—	0.11 (moderator)	0.14

Note: Diagonal values (bolded) represent √AVE, indicating discriminant validity. f^2 = effect size on Migration Intentions (MI); R^2 and Q^2 values shown for endogenous constructs only.

The R 2s measures the variance explained by the dependent variables. In this model, both Social Support and Environmental Degradation are contributing towards 52 percent of the variation in

Migration Intentions (R 2 = 0.52) whereas Environmental Degradation is explaining 48 percent of the variation in Mental Health Struggles (R 2 = 0.48). They can be taken as medium or high indications of explanatory power (Hair et al., 2022). The f 2 analysis of effect shows that there exists a large effect of Environmental Degradation on Migration Intentions (f 2 = 0.27) and a medium effect to Mental Health Struggles (f 2 = 0.21). Social Support is listed among the moderators and it has the non-trivial influence (f2 = 0.11), which indicates that it mediates the relationship between psychological stress and migration.

The values (Q 2) given using the blindfolding method available in SmartPLS establish the predictive relevance of the model. Q 2 is above 0 in all the cases signifying that the model is satisfactory in predicting endogenous constructs. Namely, the Q 2 value of 0.32 in Migration Intentions is reflective of high predictive power whereas the similar two indicators in Mental Health Struggles and Social Support are 0.29 and 0.14 and indicate the moderate relevance (Chin, 1998). These findings confirm the hypothesis that whilst the model only explains the relationship between constructs, the model can also predict future variables and hence the model will become more robust in practical and theoretical matters when it comes to the understanding of climate induced psychological and behavior outcomes.

Structural Model Results (Path Coefficients)

Structural path analysis reveals high correlations among the main variables that these relationships are rather significant. Mental Health Struggles is directly related to Environmental Degradation (β = 0.692, p < 0.001), which has shown that the more the people are exposed to environmental stressors (e.g., drought, heatwaves, floods) the higher the psychological distress experienced by the populations in rural regions. In like manner, Mental Health Struggles is also found to be a strong predictor of Migration Intentions (b = 0.541, p < 0.001), thus confirming that symptoms of mental health stress like eco-anxiety and depression factors are main drivers of rural households to migrate as a way of coping with the pressure. The direct correlation between Environmental Degradation and Migration Intentions (0.317, p < 0.001) also proves that ecological disturbance not only impacts mental health, but also determines behavioural choices to be made in the future.

Table 4: Structural Model – Path Coefficients

Path	β (Beta Coefficient)	t-value	p-value	Result
Environmental Degradation → Mental Health Struggles	0.692	12.47	0.000	Significant
Mental Health Struggles → Migration Intentions	0.541	10.02	0.000	Significant
Environmental Degradation → Migration Intentions	0.317	5.64	0.000	Significant
Social Support (Moderation) → MI	-0.173	3.18	0.002	Significant
Environmental Degradation → Mental Health → MI (Mediation)	0.374	6.89	0.000	Significant Mediation

Additionally, the mediation indirect effect is significant (0.374, p < 0.001), hence confirming that the mental health challenges mediated the relationship between environmental degradation and migration. It points out the psychological channel according to which ecological crises affect migration behavior. Also, the significance of the moderating effect of Social Support on the interaction of mental health and migration is also negative (0.173, p = 0.002) whereby when mental health and community or family support is high, a person is unlikely to migrate despite the problems. These results do not contradict the assumption of Green Sociology that structural vulnerability is decisive as well as emotional responses to environmental devolution in understanding social procurements such as migration.

Discussion

This research supports this fact because it dispels the weighty evidence in the scholars that environmental degradation is a major cause of increased mental health challenges among the rural populations in Sindh. This is consistent with the increasing amount of research globally that indicates that there is increased prevalence of psychological distress when people are exposed to climate stressors (including extreme heat, droughts, and flooding, among others) (Clayton et al., 2023; Hogg et al., 2021; Yousaf et al., 2022). The robust path coefficient between the environmental degradation and mental health (beta = 0.692) confirms that eco-anxiety and emotional instability cannot be described as disconnected phenomena but rather as strong responses to experienced disruptions of ecology. Convergent evidence in South Asia reaffirms that a roller coaster of environmental shocks worsens the sense of helplessness, loss, and fear among agrarian people further when coupled with poverty and ignoring by the institutions (Farooqi & Khan, 2023; Cunsolo et al., 2022).

The state of mental health was identified to also have a great impact on migration intentions (beta = 0.541), which caters to recent cross-sectoral discussions that climate migration is no longer an exclusively financial measure since it became psychosocial (Ayeb-Karlsson, 2022; Thomas et al., 2023). In this regard, the Green Sociology also presents the critical perspective of showing that both the emotional and psychological aspects play a critical role in the perception of mobility choices. Besides the direct response to threats related to physical climate, migrants are also fleeing anxiety, uncertainty, and a subsequent decline in mental health that accompanies it (Cunsolo et al., 2022; Nawaz & Iqbal, 2022). The conclusion supports the findings of recent studies in Bangladesh, India, and inner Sindh, where people explain that they are thinking of migration as both a survival strategy and an adaptation mechanism (Rigaud et al., 2021; Arshad et al., 2023).

Notably, the research found that the connection between environmental degradation and migration intention is mediated by mental health whereas social support participates in buffering effects. Such findings are not surprising based on the psychological resilience theory or the social capital literature, which imply that social networks have the potential to alleviate emotional burden associated with climate stress as well as postpone migration decision (Clayton et al., 2023; Dalgard et al., 2006). The negative moderation coefficient of social support (beta = -0.173) indicate that for people with stronger attachment to their families or communities, the probability of not migrating is high, despite the presence of mental dysfunction. Such observations indicate the demand to redefine climate adaptation policy in such a way that it not only concentrates on infrastructure and invests more in local mental conditions and community support systems in rural facilities (UNDP, 2023; Barry & Dorling, 2022). Therefore, does the country or region of study contain a moderate or high level of vulnerability to climate dynamics or the turbulence of glaciers, sea level, and change in weather condition/climatic patterns.

Recommendations

Going by the findings, the policymakers should incorporate mental health support in climate adaptation policy at the rural level. Mobile mental health units and trained community health workers should be availed to provide psychological services to people in areas that are prone to droughts, floods, and intense heat. Psychosocial awareness campaigns also need to be in line with environmental protection programs in making people better abreast with eco-anxiety and other emotional problems relating to environmental uncertainty.

Moreover, it is crucial to enhance the local social support systems. The buffering of the migration pressure through community-based resilience networks, religious or welfare institutions, and all inclusive institutions at the village level is essential. Instead of purely advancing the infrastructure, the policy of climate resilience ought to enable the social capital and social cohesion to minimize the psychological and migratory effects of the environment mismanagement. The existence of

early warning systems as well as schemes of disaster insurance, and adaptive agricultural training will also help mitigate both psychological distress and migration plans of forces in vulnerable regions.

Future Directions and Limitations

Although this piece of work is very instructive, it still lacks some limitations that need to be filled in the next research. The use of self-reported data could have induced a subjective bias likely to occur when reporting on psychological symptom and migration intentions. Also, the fact that the data are cross-sectional means that the time-varying usage cannot be concluded based on it. Prospective research in the future can take the form of longitudinal studies thereby examining the impacts of the repeated environmental shocks on mental health and migration patterns over time (i.e. seasons, years). The qualitative interviews could also add some understanding to the actual emotional life as experience in making the choice of migration.

Future studies are also required to investigate the matter of such factors like gender, caste, and disability forming intersectionality of vulnerability to the environmental stress onset and development of mental processes. Extending the geographic location to other eco-fragile territories of Pakistan like Balochistan or mountainous north might offer some comparative knowledge. Also, more research on digital and institutional support systems, which manifest in telemedicine and climate migration policies, may be an avenue through which similarly applied scalable preventive and restorative-type interventions can be discovered with the aim of mitigating.

Conclusion

This study offers a comprehensive sociological perspective on how environmental degradation not only threatens ecosystems and livelihoods but also deeply affects the psychological well-being and behavioral intentions of rural communities. The findings confirm that rural households facing ecological instability are significantly more likely to experience mental health challenges, particularly eco-anxiety, which in turn increases their propensity to consider migration as a coping mechanism. By integrating the theoretical lens of Green Sociology, the research sheds light on the complex and often overlooked emotional dimensions of climate change, revealing that migration is not merely an economic or physical displacement, but also an emotional response to deteriorating environmental and social conditions. The role of social support emerges as a critical protective factor, moderating the link between mental distress and migration intentions. This emphasizes the importance of community resilience, accessible mental health care, and inclusive policy design in climate adaptation planning. Overall, the study not only fills an empirical gap in environmental sociology and climate migration literature but also offers practical pathways for designing responsive and humane policies that address the mental, social, and spatial consequences of climate disruption in vulnerable regions like rural Sindh.

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