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Beyond Population Loss: Social Pathways Linking Youth Out-Migration and Rural Resilience in China

超越人口流失：中國青年外流與鄉村韌性之間的社會路徑

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Abstract:
Youth out-migration is reshaping rural life in China. This study examines its relationships with social organisation, intergenerational relations and community resilience in Henan Province. A mixed-methods design combines questionnaires from 200 rural residents with 50 semi-structured interviews. The reported survey patterns and interview themes highlight community participation, caregiving responsibilities and informal support as relevant dimensions of rural adaptation. The proposed framework links migration-related experiences to resilience through social and family relationships. These pathways require cautious interpretation because recruitment was locally mediated, temporal ordering was not established and further reporting is needed to assess indirect effects and construct distinctiveness. The study contributes a contextual framework for examining rural social change and identifies community organisations and intergenerational care as areas for further policy investigation.

摘要：
青年外流正在重塑中國鄉村生活。本文考察河南省農村青年外流與社會組織、代際關係及社區韌性之間的關聯。研究採用混合方法，結合2

Keywords: Youth Out-Migration, Rural Resilience, Social Organization, Intergenerational Relations, Mixed Methods

關鍵詞：青年外流，鄉村韌性，社會組織，代際關係，混合研究方法

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00名農村居民的問卷和50次半結構式訪談。問卷模式與訪談主題突出社區參與、照護責任和非正式支持在鄉村適應中的作用。研究框架提出，遷移相關經驗可能透過社會及家庭關係與韌性相聯繫。由於招募依靠地方聯絡，時間先後關係尚未確定，間接效應與構念區別亦需要進一步報告，這些路徑應謹慎解讀。本文為分析鄉村社會變遷提供情境化框架，並提出社區組織與代際照護等值得繼續研究的政策議題。

1. Introduction

Rural transformation has become a major issue in many developing and emerging economies. China offers a clear example. Rapid urbanization has changed population patterns, labor allocation, and social relations in rural areas (Chen et al., 2024; Dietz et al., 2023). Large numbers of young people leave villages in search of better jobs, education, and living conditions. This process supports individual mobility, but it also creates new pressures for local communities. The previous studies show that youth out-migration is shaped by income gaps, unequal access to public services, and changing life expectations (Clendenning, 2023; Karkkulainen, 2024). These movements affect more than economic outcomes. At the household level, migration changes family roles and caregiving arrangements, and weakens traditional intergenerational support systems (Gu, 2022). At the community level, the loss of working-age residents reduces participation in collective activities and challenges the operation of local institutions (Zamfirescu-Mareș & Corman, 2025). From a broader perspective, these social changes may influence how rural communities respond to demographic decline and social stress (Shen et al., 2022).

Despite growing attention to rural change, the links between migration, social organization, family relations, and community resilience are still not fully understood, especially in inland regions of China. Sustained youth out-migration has created a structural dilemma for many rural areas. Migration brings income and new opportunities to households. At the same time, it may weaken social ties, increase the care burden on older residents, and reduce community participation. These mixed effects raise an important question. How do rural communities maintain social stability and adaptive capacity under long-term population outflows?

This study addresses this question by examining the relationships among youth out-migration, rural social organization, intergenerational relationships, and community resilience in Henan Province. The main objectives are to: explore how youth out-migration affects the organization and functioning of rural communities? and examine changes in intergenerational relationships within rural households. It assesses how these social changes shape community resilience? And identify the role of community networks and intergenerational support in linking migration and resilience outcomes. The existing research on youth migration has mainly focused on economic effects, labour mobility, and demographic trends (Sun et al., 2024; Kwilinski et al., 2022). Studies on rural resilience often emphasize institutional capacity, environmental risk, or development policies (Nursey-Bray et al., 2022; Su et al., 2025). These two strands of research are rarely combined within one analytical framework. In addition, many empirical studies rely on either survey data or qualitative case analysis. This separation limits the ability to capture complex social processes that involve both community structures and family relations. Evidence from inland agricultural provinces is also limited, even though these regions face strong migration pressure and rapid population aging. This study contributes to the literature in three main ways. First, it builds an integrated framework that connects youth out-migration, rural social organization, intergenerational dynamics, and community resilience. Second, it applies a mixed-methods approach that combines structural modelling with qualitative evidence to capture both patterns and lived experiences. Third, it provides region-specific evidence that helps extend existing theories of rural resilience to high-migration settings

2. Literature Review and Hypotheses Development

Many studies show that youth out-migration has reshaped rural social organization across different regions. In Southeast Asia and Africa, weak job markets and the low appeal of farm work have pushed young people to leave villages, leading to labor shortages and population aging (Ngadi et al., 2023; Nwosu et al., 2022). Similar patterns appear in Ethiopia, where migration is driven by access to work and urban services, while migrants often face unstable housing and social risks after relocation (Kebu et al., 2023). In Europe, education pathways also matter. Rural students are more likely to seek urban employment when local career options are limited, which speeds up rural depopulation (Kowalewska & Markowski, 2024). Environmental stress adds further pressure. In regions such as Western Siberia, climate change and industrial activity increase migration and weaken long-standing community ties (Bogdanova et al., 2022).

In China, rural social organization has long depended on kinship networks, village committees, and informal cooperation. Population outflows disrupt these systems. Fewer working-age residents take part in local governance and collective activities, while informal institutions gradually lose influence (Zamfirescu-Mareș & Corman, 2025). These changes affect not only economic capacity, but also everyday social coordination within villages. Based on this discussion, this study expects youth out-migration to influence the structure and operation of rural social organization.

Hypothesis:

H1: Youth out-migration is associated with changes in rural social organization.

2.1. Youth Migration and Intergenerational Relationships

Migration also reshapes family life and intergenerational relations. In China, household migration affects education outcomes, emotional support, and daily care arrangements. Parents who migrate may improve children's learning opportunities, yet physical separation often creates emotional distance and supervision gaps (Zhou et al., 2023). Similar patterns appear in Southeast Asia, where left-behind children frequently become migrants themselves later in life, influenced by household networks and gender norms (Chow et al., 2023). In developed settings such as rural Japan, remittances and emotional ties can help families cope with population loss, but they rarely replace direct involvement in community and family life (Wang et al., 2025).

Large development projects and forced relocation add further pressure. When families are moved from their original settlements, social ties weaken and place identity becomes harder to maintain, making it more difficult to rebuild stable intergenerational support systems (Gao et al., 2025). Taken together, these findings suggest that youth migration changes caregiving roles, communication patterns, and emotional bonds within rural households. This study therefore expects migration to affect intergenerational relationships.

H2: Youth out-migration affects intergenerational relationships in rural households.

2.2. Youth Migration and Rural Community Resilience

Community resilience refers to the ability of local communities to cope with change and maintain basic social functions. Research shows that resilience depends on social cohesion, institutional strength, and access to public services (Shen et al., 2022). In China's frontier regions, stronger rural resilience is linked to higher rates of return migration and smoother reintegration of migrant workers (Su et al., 2025). Other studies highlight the role of youth participation, entrepreneurship, and local leadership in helping rural areas adapt to economic and social change (Dragin et al., 2024; Pramono & Juliana, 2025). Resilience is not driven by economic investment alone. Social networks also matter. When youth out-migration reduces participation in village activities and weakens informal institutions, communities may find it harder to respond to labor loss and population aging. Even when remittances increase household income, social capacity can still decline. Based on this view, this study expects youth out-migration to be linked to changes in rural community resilience.

H3: Youth out-migration is associated with changes in rural community resilience.

2.3. The Mediating Role of Social Organization and Intergenerational Support

Many studies examine migration and resilience as separate topics. Fewer focus on the social pathways that connect them. Rural social organization and intergenerational support provide important links between population mobility and community outcomes. Strong village institutions help organize collective action and share resources, while family networks help manage care duties and reduce social pressure (Nursey-Bray et al., 2022). When these systems weaken, communities face greater difficulty adapting to labor shortages and aging populations. At the same time, some households develop informal coping strategies by relying more on extended family members and local networks. These patterns suggest that migration does not affect resilience in a simple direct way. Social mechanisms play a key role in this process. This study therefore proposes a mediation framework in which rural social organization and intergenerational support transmit the effects of youth out-migration to community resilience.

H4: Rural social organization and intergenerational support mediate the relationship between youth out-migration and community resilience.

3. Research Gap and Theoretical Framework

3.1. Research Gap

Existing research on youth migration has largely focused on economic drivers and individual outcomes, such as income mobility, employment opportunities, and education access (Kwilinski et al., 2022; Sun et al., 2024). While these studies provide important insights, they often examine migration as a stand-alone process. The broader social consequences for rural communities receive less systematic attention.

In particular, the joint effects of youth out-migration on rural social organization, intergenerational support, and community resilience are rarely examined within a single analytical

framework (Nursey-Bray et al., 2022). Many studies address these topics separately or rely on only one type of data, either quantitative surveys or qualitative case evidence. This separation limits the ability to capture the complex social mechanisms that link population mobility and community adaptation. There is also a clear regional gap. Empirical evidence from inland provinces in China remains limited, even though these areas face strong migration pressure and rapid population aging (Chen et al., 2024). Existing research has focused mainly on destination cities or coastal regions, leaving the social dynamics of migrant-sending rural communities underexplored. To address these gaps, this study applies a mixed-methods design and uses structural equation modelling to examine how youth out-migration reshapes rural social organization and intergenerational support, and how these changes are linked to community resilience. By combining structural analysis with qualitative evidence, the study provides a more integrated understanding of rural transformation in high out-migration settings.

3.2. Theoretical Framework Overview

Figure 1 shows the conceptual framework of this study. It links youth out-migration with rural social organization, intergenerational support, and community resilience. Population mobility is treated as the starting point. Previous studies note that migration decisions are shaped by economic pressure, service access, and social expectations (Clendenning, 2023; Kwilinski et al., 2022). When young people leave rural areas, the effects extend beyond labor supply. Daily social relations and local institutions also change (Chen et al., 2024).

At the community level, out-migration influences participation in village organizations, informal cooperation, and collective activities. Research on rural governance shows that population decline often weakens local coordination and reduces institutional capacity (Zamfirescu-Mareș & Corman, 2025; Shen et al., 2022). At the household level, migration reshapes caregiving roles and intergenerational interaction. Family members who remain in rural areas take on more responsibilities, while emotional support and face-to-face contact become less frequent (Zhou et al., 2023; Chow et al., 2023). These social changes from the main pathways through which migration affects resilience. Studies on community adaptation emphasize that social networks and collective action help rural areas respond to labour loss and demographic aging (Nursey-Bray et al., 2022; Dragin et al., 2024). When social ties are strong, communities are better able to adjust to change. When they weaken, vulnerability increases. The framework, therefore, assumes that the effect of youth out-migration on resilience is mainly transmitted through social mechanisms. Rural social organization and intergenerational support act as key channels linking population mobility and adaptive capacity. This integrated structure provides a clear basis for empirical testing and helps connect theoretical discussion with practical strategies for strengthening rural communities in high out-migration settings.

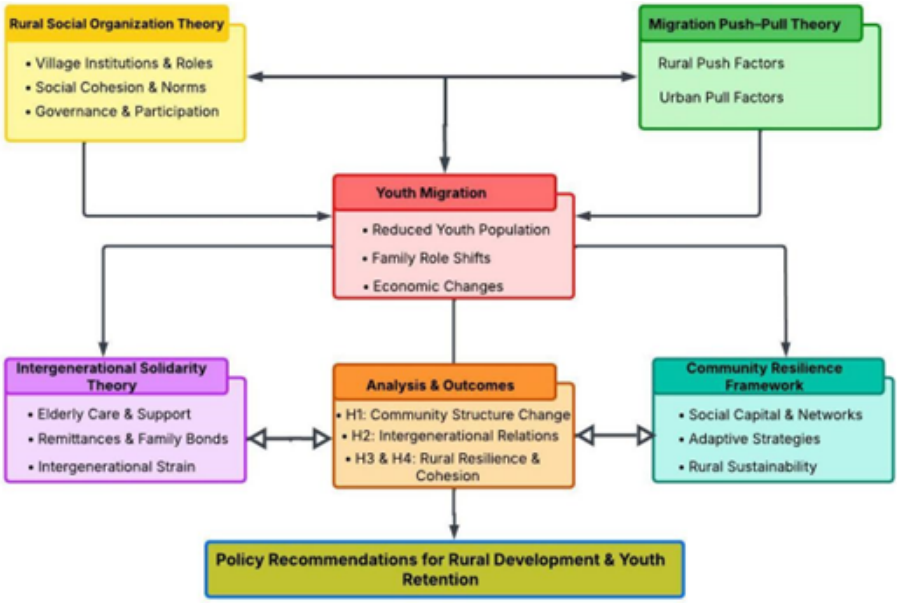


Figure 1. Conceptual Framework Integrating Youth Migration, Rural Social Organization, and Community Resilience (The Author)

3.3. Rural Social Organization Perspective

Rural social organization describes how people in villages work together in daily life. It includes local rules, shared norms, and informal networks. These elements help communities coordinate activities and solve common problems. Studies in rural sociology show that strong social ties and active local institutions make collective action easier and improve cooperation (Shen et al., 2022; Zamfirescu-Mareș & Corman, 2025). Over time, these arrangements grow out of farming practices, community traditions, and repeated interaction among residents.

In China, rural communities have long relied on kinship ties, mutual help, and village-level governance. Family networks support trust and information sharing. Village committees and informal leaders organize public affairs and manage collective tasks (Chen et al., 2024). Together, these formal and informal structures shape participation in village meetings, community events, and local decision-making. Youth out-migration changes this system. When young and working-age people leave, fewer residents take part in collective work and community activities. Informal cooperation becomes weaker. Leadership renewal also slows down (Sun et al., 2024). Older residents often carry more responsibility, which increases pressure on local institutions. Over time, this can reduce coordination capacity and create imbalance in community organization. These patterns suggest that rural social organization plays an important role in linking migration and wider community outcomes. For this reason, it is treated as a key component of the conceptual framework in this study.

3.4. Migration and Push–Pull Perspective

Migration decisions are shaped by both conditions in rural areas and opportunities in cities. Studies on population mobility show that people leave when local resources are limited and move toward places that offer better work, services, and living conditions (Clendenning, 2023; Kwilinski et al., 2022). This push–pull process reflects not only personal choice, but also wider economic and institutional structures.

In rural China, several factors continue to push young people away from their home villages. Income from agriculture is often unstable. Non-farm job options remain limited. Access to higher education, health care, and public services is also uneven across regions (Chen et al., 2024). These conditions reduce the ability of rural areas to retain young and skilled workers and contribute to long-term population decline. At the same time, cities attract rural youth with higher wages, more diverse jobs, better schools, and improved living conditions. Social mobility and career development are also strong motivations (Sun et al., 2024). As more educated and working-age individuals move to urban areas, rural communities face growing labour shortages and faster aging. Within the conceptual framework of this study, the push–pull process explains why youth out-migration occurs and why it remains persistent. More importantly, it provides the starting point for understanding how population movement triggers changes in rural social organization, family relations, and community resilience.

3.5. Intergenerational Solidarity Perspective

Intergenerational solidarity describes how family members of different ages support each other in daily life. It includes emotional ties, care work, financial help, and shared responsibilities. Research on family relations shows that strong intergenerational support helps households manage risk and maintain stability, especially in rural and traditional settings (Bengtson & Roberts, 2021; Zhou et al., 2023). In rural China, this form of support has long been part of everyday life. Older adults often help raise grandchildren and manage household tasks. Adult children, in turn, provide financial assistance and care for aging parents. This exchange of support creates continuity within families and helps sustain social order in rural communities (Chen et al., 2024).

Youth out-migration changes these arrangements. When young people move away, daily contact between generations becomes less frequent. Care duties are redistributed. Older family members often take on more responsibility at home, while emotional support becomes harder to maintain at a distance (Chow et al., 2023). Remittances may help cover basic needs, but they cannot fully replace face-to-face care and interaction (Wang et al., 2025). Over time, these shifts can weaken traditional support systems and increase pressure on remaining household members. For this reason, intergenerational support is treated in this study as a key social pathway linking youth out-migration and wider community outcomes.

3.6. Community Resilience Perspective

Community resilience describes how a village deals with change and keeps basic social and economic activities running. It is shaped by more than money or physical resources. Social ties, local groups, and shared action also matter (Shen et al., 2022; Nursey-Bray et al., 2022). In rural areas, strong connections between residents support cooperation and mutual help. These links make it easier for communities to respond when conditions shift, such as during population aging or economic pressure.

Youth out-migration weakens some of these foundations. When young and working-age people leave, communities lose skills, labour, and potential leaders. Participation in village activities often falls. Social networks become thinner and less active (Su et al., 2025). Over time, this reduces the ability of rural

areas to deal with labour shortages, service gaps, and social change. In this study, community resilience is treated as the outcome of migration-related social change. It reflects how well rural communities adjust when population movement reshapes local social life.

4. Materials and Methods

Figure 2 outlines the research procedure used in this study. A mixed-methods design was adopted to examine how youth out-migration affects rural social organization, intergenerational relationships, and community resilience in rural China. Mixed-methods research is widely used in social studies when complex social processes cannot be fully captured by a single data source. Survey data help identify general patterns, while interviews provide context and meaning behind these patterns. Together, they improve the reliability and depth of analysis.

In this study, quantitative and qualitative data were collected in parallel. A structured questionnaire survey was conducted with 200 rural residents to measure key social constructs and test the proposed hypotheses. At the same time, semi-structured interviews were carried out with 50 participants to explore family relations, community interaction, and local adaptation strategies. The survey data were analysed using descriptive statistics, correlation analysis, and structural equation modelling. This approach allows the examination of both direct and indirect relationships among latent variables and is suitable for testing mediation pathways in social systems. Interview data was analysed through thematic coding to identify recurring social patterns and shared experiences. The qualitative findings were then used to support and interpret the statistical results. By combining these two forms of evidence, the study aims to provide a more complete picture of how youth out-migration reshapes rural social systems and influences long-term community resilience.

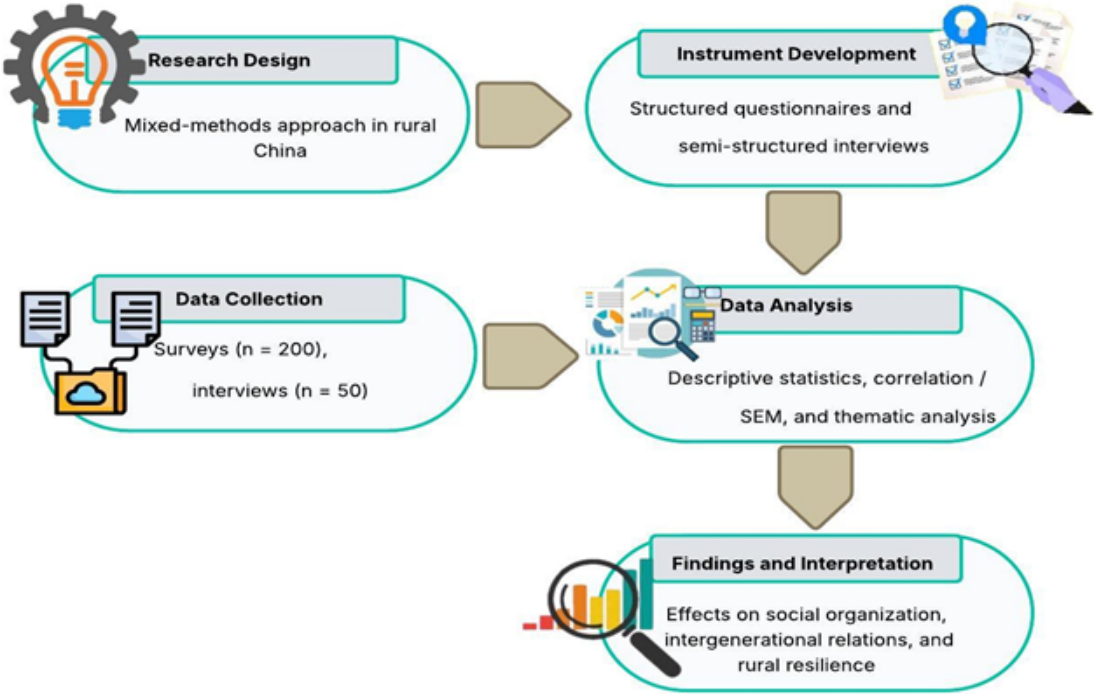


Figure 2. Research methodology for Assessing Youth Out-Migration and Rural Social Dynamics (The Author)

4.1. Research Design

This study adopted a mixed-methods research design to examine the social effects of youth out-migration in rural Henan Province, China. A parallel data collection strategy was used. Quantitative and qualitative data were gathered during the same period and integrated at the analysis stage. This design allows both structural patterns and everyday social processes to be examined within a single framework. The mixed-methods approach is suitable for studying migration-related social change because it combines statistical testing with contextual interpretation. Survey data capture general relationships among key variables, while interviews provide detailed insight into how families and communities experience these changes.

The quantitative component was used to test the proposed hypotheses (H1–H4). Structured survey data were collected from rural residents and analysed to examine the relationships among youth out-migration, rural social organization, intergenerational support, and community resilience. This approach supports objective measurement of latent constructs and allows the estimation of both direct and indirect effects through structural equation modeling.

The qualitative component focused on understanding lived experiences and social adjustment processes related to youth migration. Semi-structured interviews were conducted with rural residents, migrant family members, and community actors.

These interviews explored family responsibilities, generational interaction, and local adaptation strategies. Qualitative findings were used to complement the statistical results and provide a deeper interpretation of observed patterns.

4.2. Instrument Development

The survey instrument was developed to capture key social constructs related to youth out-migration and rural change. In social research, concepts such as social organization, intergenerational support, and community resilience are not directly observable. They are usually measured through multiple indicators that reflect daily behaviour and social interaction patterns. Following this approach, each construct in this study was assessed using several questionnaire items adapted from previous studies and adjusted to the rural China context. The final questionnaire included 20 measurement items covering youth out-migration, rural social organization, intergenerational support, and community resilience.

All items were rated on a five-point Likert scale ranging from "strongly disagree" to "strongly agree." This format is widely used to measure attitudes and perceptions because it is simple for respondents and allows consistent comparison across individuals. It also fits well with latent variable modelling and structural equation analysis, which require standardized response scales. Before the main survey, the questionnaire was reviewed by field researchers and tested with a small pilot group to ensure that the wording was clear and culturally appropriate.

The qualitative interview guide was designed to explore how rural residents experience youth out-migration in daily life. Semi-structured interviews were used because they balance structure and flexibility. Core topics were covered in all interviews, while participants were free to explain their own experiences and concerns. The interview questions focused on family roles, intergenerational interaction, community participation, and local adaptation practices. This approach helps capture social processes that are difficult to measure with fixed survey questions. The interview data were used to support and interpret the quantitative findings and to provide a richer understanding of the mechanisms linking migration and social change.

4.3. Data Collection

Data were collected from rural villages in Henan Province using survey questionnaires and semi-structured interviews. This two-source design follows common practice in social research, where quantitative data are used to identify general patterns and qualitative data help explain how these patterns are formed in daily life. Together, the two approaches allow a more balanced view of migration-related social change. A structured questionnaire survey was conducted with 200 rural residents from selected villages. Participants were recruited through local community contacts and village networks. Respondents came from different age groups and household backgrounds to capture variation in social conditions, family roles, and community participation. The survey instrument is presented in Appendix A. The survey data were used for descriptive analysis and structural equation modelling. This approach makes it possible to examine relationships among key constructs and to test the proposed hypotheses at the community and household levels. Standardized survey measures also help ensure comparability across respondents and support reliable estimation of latent variables.

Semi-structured interviews were conducted with 50 participants, including migrant youth, older family members, village leaders, and representatives from local organizations. A purposive sampling strategy was applied to include individuals with direct experience of youth migration and community change. The interviews focused on family responsibilities, intergenerational interaction, community participation, and local adaptation practices.

Data collection continued until similar themes began to repeat across interviews. This process is commonly used in qualitative research to ensure that major social patterns have been adequately captured. The interview data provided detailed accounts of everyday experiences that cannot be fully reflected in survey responses.

All participants were informed about the purpose of the study before data collection. Participation was voluntary and anonymous. No personally identifiable information was recorded. Interview recordings and transcripts were stored securely and used only for academic research. Survey and interview data were analysed separately and then combined at the interpretation stage. This integration helps link statistical results with real social experiences. It also improves the robustness of the findings by allowing different types of evidence to support each other when assessing the social effects of youth out-migration on rural communities and resilience outcomes.

5. Data Analysis

5.1. Quantitative Data Analysis

Quantitative data from 200 rural respondents were analysed using descriptive statistics, correlation analysis, and Partial Least Squares Structural Equation Modelling (PLS-SEM). This analytical sequence follows common practice in social research, where basic distribution patterns are examined first and structural relationships are tested at a later stage. It also allows both observed trends and latent social mechanisms to be assessed within a single framework.

Descriptive statistics were used to summarize general patterns of community participation, intergenerational support, and rural resilience. The results indicate moderate overall levels across most indicators. This pattern suggests that social interaction and adaptive capacity remain present in many villages, but not at a strong level. Differences across households and communities were also evident. Relatively large standard deviations reflect variation in migration exposure, family structure, and local social conditions. Such heterogeneity is common in rural settings where economic opportunities and population mobility differ across locations.

Correlation analysis was used to describe associations among the constructs before structural modelling. The reported correlations are positive. Their interpretation is descriptive because Table 9 does not provide confidence intervals or significance tests.

PLS-SEM was applied to test the proposed conceptual framework. This method is widely used in social and behavioural research when models include multiple latent constructs and mediating pathways. It is suitable for moderate sample sizes and does not require strict distributional assumptions. In this study, PLS-SEM was used to estimate both direct and indirect relationships among youth out-migration, rural social organization, intergenerational support, and community resilience. This approach allows the assessment of how migration influences resilience through intermediate social mechanisms, rather than only through simple linear effects.

The PLS-SEM model was estimated with a maximum of 3,000 iterations and a convergence criterion of 10^{-7}. Standardised estimates were used. Cronbach's alpha and composite reliability exceeded 0.70 for each construct. AVE exceeded 0.50 for three constructs and was 0.498 for YOM_IR. These findings support internal consistency, although the convergent and discriminant validity of the measures require cautious interpretation.

The reported model accounts for 45.9% of the variance in community and intergenerational networks, 57.0% in intergenerational relationships and 71.4% in rural resilience. These are within-sample explanatory measures. They do not establish temporal ordering or causal effects. The reported SRMR is 0.077; interpretation of the overall model also depends on measurement validity and verification of the structural output.

5.2. Qualitative Data Analysis

Qualitative data from 50 semi-structured interviews were analysed using thematic analysis. Transcripts were coded and grouped into recurring themes linked to youth migration and rural change. Four themes appeared most often. Many participants pointed to income pressure and better job prospects as key drivers of youth migration. Caregiving roles also shifted, with older family members taking on more childcare and daily tasks. Reduced community engagement was common in villages with high out-migration. Households described coping strategies that relied on extended family support and informal mutual help. Participants said digital tools can keep families connected. Still, most stressed that online contact does not fully replace face-to-face interaction and daily presence. These accounts help explain the quantitative pattern in which social organization and intergenerational support carry much of the link between migration and resilience.

6. Results and Discussion

The analysis combines quantitative results and qualitative evidence to examine how youth out-migration reshapes rural social life. Survey findings show moderate levels of community participation and intergenerational support. At the same time, large differences appear across households and villages. This pattern suggests that migration affects rural areas unevenly and that local social conditions still matter. The structural model further indicates that youth out-migration influences rural resilience mainly through indirect social pathways. Intergenerational support and community networks play a central mediating role. Direct effects from migration to resilience remain relatively weak. This highlights the importance of social organization in shaping how communities respond to population change.

Qualitative analysis supports these results. Interview data show that economic opportunity and policy expectations are key reasons for youth migration. Participants also describe changes in family roles and community interaction. Together, the findings suggest that youth migration does more than alter income flows. It reshapes everyday social relations and the way rural communities adapt to long-term change.

6.1. Structural Equation Modeling of Youth Migration Effects

Table 1 reports the main parameter settings used for the PLS-SEM estimation. The model was estimated with 3,000 iterations and a strict convergence criterion to ensure numerical stability. Standardized estimates were reported to allow comparison of effect magnitudes across constructs. A path weighting scheme was applied in line with the theoretical structure of the proposed model.

Table 1. PLS-SEM Model Estimation Settings (The Author)

PLS-SEM Algorithm Setting	Specification
Maximum number of iterations	3000
Stop criterion	10^{-7}
Use Lohmoeller settings	No
Initial indicator weights	1
Weighting scheme	Path weighting scheme
Type of results	Standardized estimates
Vary copula by binary categories	Yes

6.1.1. Model Fit Assessment

Overall model fit statistics are presented in Table 2. The standardized root mean square residual (SRMR) value of 0.077 falls below the commonly accepted threshold of 0.08, indicating acceptable agreement between observed and model-implied correlations. Additional discrepancy measures (d_ULS and d_G) also suggest reasonable model performance. Although the chi-square statistic is reported for reference, it is sensitive to sample size and is therefore interpreted with caution in PLS-SEM applications. The Normed Fit Index (NFI) value indicates moderate model fit, which is consistent with the exploratory nature and structural complexity of the current model.

Table 2. Model Fit Indices and Overall, Goodness-of-Fit Assessment (The Author)

Fit Index	Saturated Model	Estimated Model
SRMR	0.077	0.077
d_ULS	1.253	1.253
d_G	1.805	1.805
Chi-square	2006.745	2006.745
NFI	0.608	0.608

6.1.2. Structural Path Results

Figure 3 illustrates the estimated structural relationships among youth out-migration, rural social organization, intergenerational relationships, and community resilience. The model explains a substantial share of variance in the endogenous constructs. Specifically, 45.9% of the variance in community and intergenerational networks (R^2 = 0.459), 57.0% of the variance in intergenerational relationships (R^2 = 0.570), and 71.4% of the variance in rural resilience (R^2 = 0.714) are accounted for by the model.

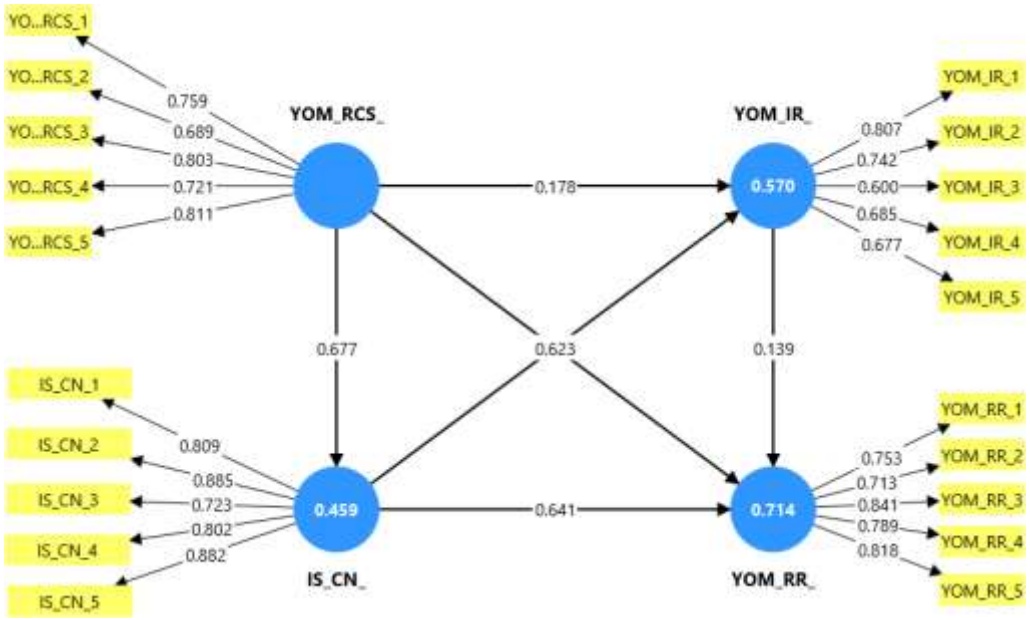


Figure 3. Structural Equation Model Illustrating Relationships among Youth Out-Migration, Community Networks, Intergenerational Relations, and Rural Resilience (The Author)

Figure 3 presents associations among the modelled constructs. The proposed social pathways offer a framework for examining links between migration-related experiences and resilience. A firm conclusion about mediation requires specific indirect-effect estimates and their bootstrap confidence intervals. The relative importance of direct and indirect paths should therefore be interpreted provisionally.

6.2. Descriptive Analysis of Community Structure, Intergenerational Relations, and Rural Resilience

Table 3 summarizes descriptive statistics for key indicators of community participation based on responses from 200 rural residents. Overall, reported levels of community involvement remain moderate. However, clear differences appear across specific forms of participation. Leadership-related engagement shows the highest average level, suggesting that a smaller group of individuals remains actively involved in village decision-making and coordination. Participation in formal organizations also remains relatively stable. In contrast, involvement in community events and cooperative activities is lower, indicating reduced engagement in collective and informal social activities. The overall community participation score further reflects substantial variation

across respondents. This pattern suggests uneven social involvement across households and villages. Such differences may be linked to demographic change and population mobility, where youth out-migration reshapes who participates in local affairs and how community activities are sustained.

Table 3. Descriptive Statistics of Community Participation Indicators (The Author)

Variables	N	Sum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Std. Error	Statistic
Participation	200	580	2.90	.098	1.389
Organizations	200	602	3.01	.104	1.473
Leadership	200	625	3.12	.101	1.428
Events	200	589	2.94	.100	1.408
Cooperation	200	592	2.96	.100	1.414

Table 4 presents descriptive results for intergenerational relationship indicators. Overall, intergenerational interaction and support remain at a moderate level, with average values clustered around the mid-range of the scale. This suggests that family ties remain active, but not particularly strong, in many rural households. Support-related indicators show the highest average level, indicating that financial and material assistance between generations continues to play an important role in rural family life. Communication and caregiving activities remain moderate, reflecting ongoing contact between family members despite physical separation caused by migration. At the same time, role responsibility and intergenerational stress display noticeable variation across households. The relatively large standard deviations suggest uneven family experiences. Some families maintain stable intergenerational cooperation, while others face greater strain. These differences are likely linked to migration intensity, household structure, and the changing division of family labour in rural areas.

Table 4. Descriptive Statistics of Intergenerational Relationship Dimensions (The Author)

Variables	N	Sum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Std. Error	Statistic
Caregiving	200	586	2.93	.099	1.395
Communication	200	588	2.94	.097	1.366
Roles	200	584	2.92	.103	1.451
Stress	200	597	2.98	.103	1.451
Support	200	611	3.06	.104	1.474

Table 5 reports descriptive statistics for rural community resilience indicators. Overall, resilience-related measures remain at a moderate level across the sample. This suggests that rural communities retain basic adaptive capacity, but still face structural constraints under continued population outflow. Among the resilience dimensions, household coping capacity and access to support resources show relatively higher average levels. These results indicate that families rely on internal adjustment and informal networks to respond to social and economic pressure. In contrast, indicators related to labour availability and collective response capacity tend to be lower, reflecting challenges created by the loss of working-age residents.

Table 5. Descriptive Statistics of Rural Resilience Dimensions (The Author)

Variables	N	Sum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Std. Error	Statistic
Labor	200	588	2.94	.100	1.416
Coping	200	588	2.94	.102	1.438
Sustainability	200	581	2.90	.107	1.509
Development	200	592	2.96	.098	1.392
Resilience	200	615	3.07	.097	1.378

The relatively large variation across respondents highlights uneven resilience outcomes among villages and households. Some communities appear better positioned to adapt, while others face greater vulnerability. This pattern is consistent with the uneven effects of youth out-migration and differences in local social organization and institutional support.

Table 6 summarizes descriptive results for key social and intergenerational indicators across family, community, institutional, and network levels. Overall, respondents report moderate engagement across all dimensions. Clear differences, however, appear between informal and formal social structures. Social networks show the highest average level of engagement, indicating that personal ties with relatives, friends, and neighbours remain an important source of social connection. Family-level interaction also remains relatively strong, reflecting continued cooperation and mutual support within households. Intergenerational support follows a similar pattern, suggesting that family-based assistance remains active despite physical separation caused by migration. By contrast, participation at the community and institutional levels is lower. These results point to weaker involvement in formal organizations and collective village activities. Together, the findings suggest that rural social life is increasingly anchored in informal and family-based networks, while institutional participation plays a more limited role.

Table 6. Descriptive Statistics of Community and Intergenerational Indicators (The Author)

Variables	N	Sum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Std. Error	Statistic
Family	200	627	3.13	.102	1.441
Community	200	611	3.06	.101	1.429
Institutions	200	605	3.02	.102	1.437
Intergenerational	200	617	3.08	.103	1.462
Networks	200	631	3.15	.099	1.393

Results from the measurement model indicate satisfactory reliability and convergent validity across the study constructs (Table 7). Internal consistency is supported by Cronbach's alpha values, which all exceed the commonly accepted threshold of 0.70. Composite reliability estimates further confirm stable measurement performance, with values consistently above recommended standards.

Table 7. Measurement Model Reliability and Convergent Validity (The Author)

Construct	Cronbach's Alpha	Composite Reliability (ρa)	Composite Reliability (ρc)	AVE
IS_CN	0.878	0.881	0.912	0.676
YOM_IR	0.747	0.770	0.831	0.498
YOM_RCS	0.816	0.833	0.871	0.575
YOM_RR	0.844	0.856	0.888	0.615

Convergent validity is also supported for most constructs, as average variance extracted (AVE) values are above the 0.50 benchmark. For the intergenerational relationship construct (YOM_IR), the AVE value is slightly below this threshold. However, its composite reliability remains high, suggesting adequate construct representation. Following established guidelines, constructs with strong composite reliability can be retained even when AVE values marginally fall below recommended cutoffs. Overall, the measurement results indicate that the latent constructs are measured with acceptable accuracy and consistency.

Table 8 reports effect size (f^2) estimates for the main structural paths. The results reveal clear differences in the strength of relationships within the model. Youth out-migration shows a strong effect on community networks ($f^2 = 0.847$), indicating that population mobility plays a central role in reshaping local social structures. Community networks also demonstrate strong effects on both rural resilience ($f^2 = 0.523$) and intergenerational relationships ($f^2 = 0.489$). These results highlight the importance of social organization as a key mechanism linking migration processes to broader community outcomes.

Table 8. Effect Size (f^2) Analysis of Structural Relationships (The Author)

Structural Path	f^2 Value
IS_CN → YOM_IR	0.489
IS_CN → YOM_RR	0.523
YOM_IR → YOM_RR	0.029
YOM_RCS → IS_CN	0.847
YOM_RCS → YOM_IR	0.040
YOM_RCS → YOM_RR	0.031

By contrast, several direct paths display relatively small effect sizes. The influence of intergenerational relationships on rural resilience ($f^2 = 0.029$), as well as the direct effects of youth out-migration on intergenerational relations ($f^2 = 0.040$) and rural resilience ($f^2 = 0.031$), remain limited. Together, these patterns suggest that migration affects resilience mainly through indirect social pathways rather than through direct demographic change alone.

Table 9 presents the correlation matrix among the main study constructs. All variables show positive associations, indicating consistent directional relationships across migration, social organization, intergenerational relations, and community resilience.

Table 9. Discriminant Validity and Inter-Construct Correlations (The Author)

Construct	IS_CN	YOM_IR	YOM_RCS	YOM_RR
IS_CN	1.000	0.744	0.677	0.833
YOM_IR	0.744	1.000	0.600	0.694
YOM_RCS	0.677	0.600	1.000	0.648
YOM_RR	0.833	0.694	0.648	1.000

Community networks (IS_CN) display relatively strong correlations with rural resilience ($r = 0.83$) and intergenerational relationships ($r = 0.74$). This pattern suggests close linkages between local social ties, family interaction, and adaptive capacity in rural settings. Intergenerational relationships and youth out-migration also show moderate to strong associations with resilience outcomes ($r = 0.60$ and $r = 0.69$, respectively), reflecting the interconnected nature of demographic change and social adjustment.

The correlation between IS_CN and YOM_RR is 0.833. This exceeds the square roots of their reported AVEs, approximately 0.822 and 0.784, respectively. Table 9 therefore does not establish discriminant validity for this pair. The overlap between community networks and resilience should be considered when interpreting the structural relationships.

6.3. Qualitative Results: Thematic Evidence on Youth Migration and Rural Change

Qualitative analysis identifies several dominant themes related to youth migration (Figure 4). Economic opportunity emerges as the most frequently

mentioned driver. Many participants refer to job availability and income stability as key reasons for leaving rural areas. Policy expectations also influence migration decisions, especially perceptions of urban development support and public service access. Beyond individual motives, interview data highlight broader social effects. Participants describe changes in family roles, reduced participation in community activities, and weaker interaction with local institutions following youth out-migration. These patterns indicate that migration is not only an economic choice. It also reshapes everyday social relations and alters how rural communities function.

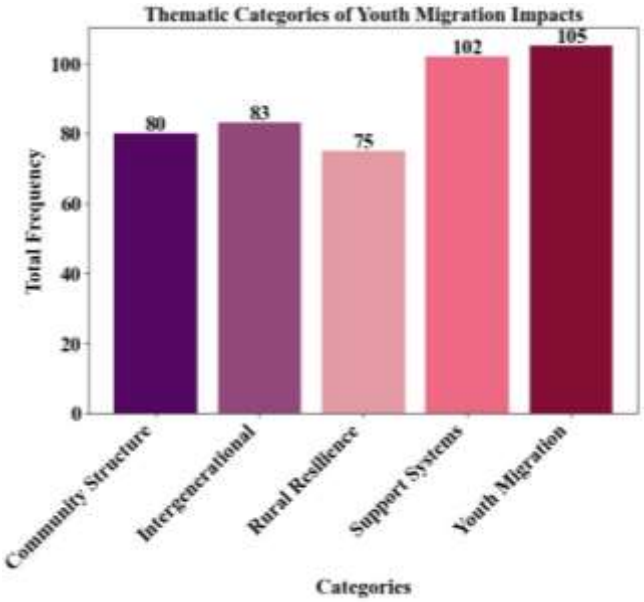


Figure 4. Thematic Distribution of Youth Migration Impacts on Rural Communities (The Author)

Qualitative findings reveal clear changes in intergenerational relationships following youth out-migration (Figure 5). A dominant theme is the expansion of responsibilities among older family members. Many participants describe older adults taking on greater roles in childcare, household management, and daily coordination after younger family members leave. This shift reflects a reorganization of family labour and caregiving arrangements. Another recurring theme is growing distance between generations. This includes physical separation and emotional strain caused by reduced daily interaction. Although digital communication tools such as mobile messaging and video calls help families stay connected, participants emphasize that these technologies do not fully replace face-to-face contact. As a result, intergenerational relationships become more fragile and less embedded in everyday family life.

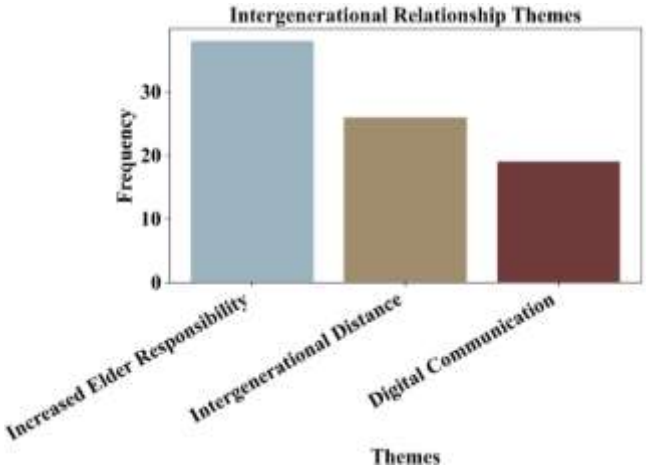


Figure 5. Dominant Intergenerational Relationship Themes in Rural Households (The Author)

Qualitative evidence further illustrates the combined drivers and consequences of youth migration (Figure 6). Many young people migrate in search of better income opportunities and improved living conditions. Policy expectations and perceptions of urban development also shape these decisions. At the same time, limited local employment options and weak rural adaptation strategies push young adults to leave their home communities.

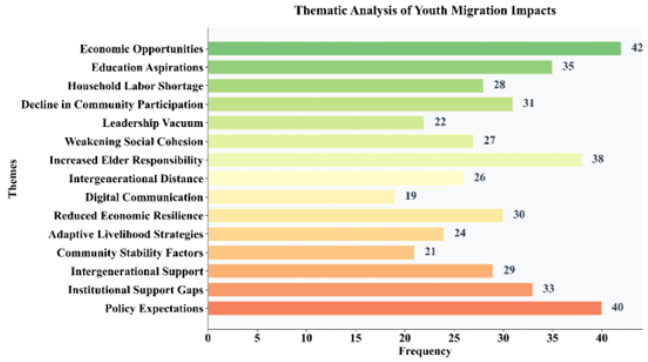


Figure 6. Thematic Frequencies of Drivers and Consequences of Youth Migration (The Author)

Migration produces visible effects on both households and villages. Participants report labor shortages within families, reduced participation in collective activities, and weaker community interaction. These changes place pressure on remaining family members and alter everyday social routines. In response, households and communities develop adaptive strategies that rely on extended family support, informal cooperation, and shared caregiving arrangements. Such practices reflect attempts to maintain stability under ongoing demographic change.

Qualitative evidence also reveals clear differences in adaptation pathways across participant groups (Figure 7). Some households report relatively positive adjustment after youth migration, supported by stable remittances, strong family ties, and access to local support networks. These families are better able to reorganize daily responsibilities and maintain social stability.

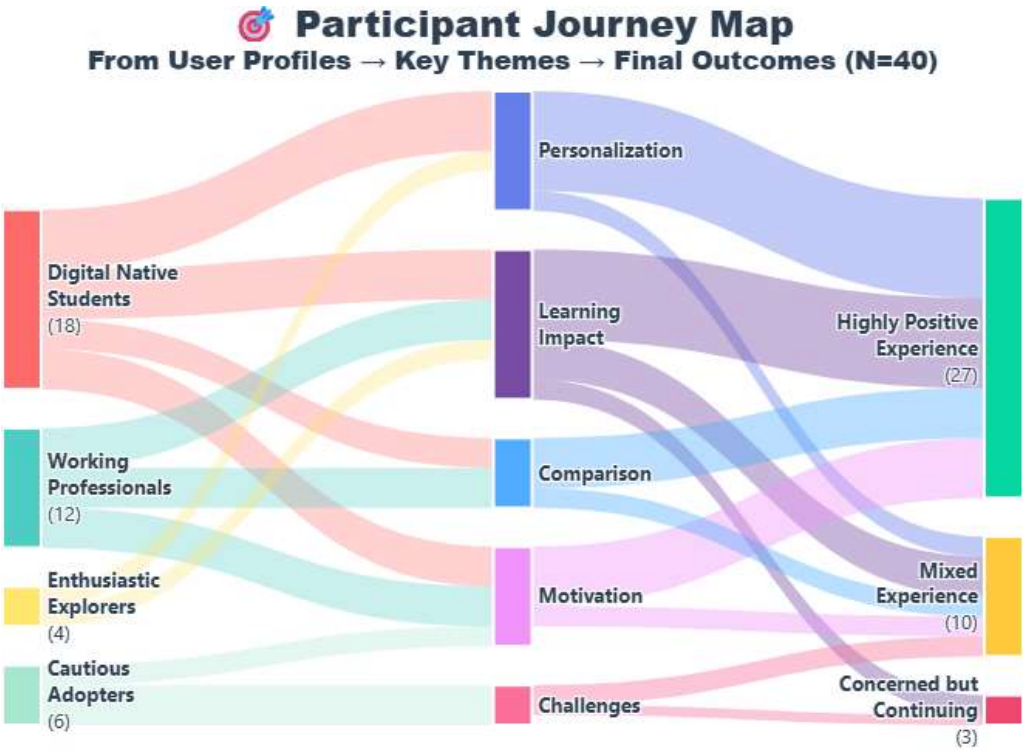


Figure 7. Participant Journey Map Illustrating Pathways from Profiles to Outcomes (The Author)

Other participants describe more mixed or difficult experiences. Limited income support, heavier caregiving burdens, and weaker community connections reduce their ability to adapt. These contrasting patterns indicate that responses to migration are not uniform. Instead, adaptive capacity depends on individual characteristics, household structure, and local social conditions. This variation helps explain the uneven resilience outcomes observed in the quantitative analysis.

7. Conclusion

This study examines the relationships between youth out-migration, rural social organisation, intergenerational relations and community resilience in Henan Province. Survey and interview findings draw attention to community participation, family care responsibilities and informal support. The results suggest that these social dimensions deserve consideration in rural revitalisation policies. The proposed mediating pathways remain provisional pending verification of the indirect effects and measurement validity. Policy implications should be interpreted within the study's recruitment and geographical context.

8. Limitations and Further Study

Recruitment through community contacts and village networks limits population-level generalisation. Self-reported measures may share response biases, and the design does not establish temporal ordering. Interpretation is also constrained by overlap between some constructs and incomplete reporting of indirect effects. The findings concern selected rural communities in Henan Province. Longitudinal and comparative research could examine whether the proposed relationships extend to other settings.

Informed Consent Statement

All participants were informed about the purpose of the study before data collection. Participation was voluntary and anonymous.

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Appendix A. Survey Questionnaire

Quantitative Data collection link: https://forms.gle/3vauewfiTeZaYaxa8

Quantitative data collection link: https://forms.gle/wUZw3Bt2cEN5oEdE9