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Stratified Aging in Urban China: How Migration Pathways Are Associated with Subjective Well-Being among Long-Term Rural-to-Urban Migrant Older Adults

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ABSTRACT

This study examines how migration pathways are associated with long-term subjective well-being among rural-to-urban migrant older adults in China. Analyzing cross-sectional survey data from 822 participants across three economically diverse cities (Shanghai, Zhengzhou, Puyang), we classified migrants into three pathways: self-actualization ($n = 277$), policy-driven ($n = 267$), and family-dependent ($n = 278$). Multivariate linear regression models assessed pathway associations with subjective social status, happiness, life satisfaction, and health satisfaction. Policy-driven migrants reported higher subjective social status ($p = 0.004$) but significantly lower health satisfaction ($p < 0.001$) compared to self-actualization migrants. Family-dependent migrants exhibited the lowest status ($p < 0.001$) yet highest happiness ($p < 0.001$) and satisfaction ($p < 0.001$). Self-actualization migrants showed high status but low emotional well-being. Subjective economic status and unemployment/retirement predicted better outcomes across all dimensions. Urban duration of 10–20 years corresponded to higher status ($p = 0.010$), while >20 years was linked to greater happiness ($p = 0.021$) and health satisfaction ($p < 0.001$). These findings demonstrate that migration pathway serves as a fundamental stratifying dimension associated with pathway-specific well-being profiles, advancing theories of stratified aging and informing targeted support systems for China's heterogeneous migrant older population.

Keywords: Rural-to-Urban Migration; Older Adults; Subjective Well-Being; Migration Pathways; Social Stratification; Long-Term Migrants

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1. Introduction

China is experiencing unprecedented population aging alongside massive rural-to-urban migration. By 2024, the population aged 65 and above had reached 220.23 million, accounting for 15.6% of the total population^[1]. Concurrently, over 280 million rural residents have migrated to urban areas since the economic reforms, constituting the largest internal migration flow in human history^[2]. Within this demographic transformation, a significant yet understudied subgroup has emerged: older adults who permanently relocated from rural to urban areas in their later life. These long-term rural-to-urban migrant older adults face unique challenges as they negotiate identity reconstruction, social integration, and well-being in environments fundamentally different from their places of origin^[3, 4].

Subjective well-being (SWB) among migrant older adults has attracted increasing scholarly attention, revealing a nuanced and often paradoxical picture^[5]. While migration to cities generally provides enhanced economic resources and family reunification opportunities, SWB outcomes remain heterogeneous^[6]. This migration happiness paradox manifests in multiple dimensions: rural-to-urban migrants exhibit higher volatility in SWB scores compared to non-migrants and report lower average happiness^[7].

Three critical mechanisms underpin these disparities. First, institutional exclusion pressure creates structural barriers: rural-to-urban migrants face restricted access to urban welfare systems, healthcare reimbursement, and civic participation^[8]. Second, social life pressure emerges from disrupted social networks; approximately 30% of migrant older adults report feelings of isolation or neglect, particularly during initial resettlement periods^[9, 10]. Third, economic security pressure varies dramatically by migration pathway, with income instability particularly acute among family-dependent migrants^[11]. These pressures collectively shape SWB trajectories, yet existing research often treats rural-to-urban migrant older adults as a monolithic category, obscuring critical heterogeneity in migration motivations and pathways.

Despite the burgeoning literature identifying generic predictors of SWB^[3, 4, 12–15], a critical sociological research gap persists: quantitative scholarship has largely treated rural-to-urban migrant older adults as a monolithic demographic, typically categorizing them dichotomously or

merely by duration^[16–18], thereby neglecting how divergent, theoretically grounded migration pathways differentially stratify long-term well-being. Although recent qualitative inquiries suggest that migration trajectories vary radically between agentic achievement and state-led relocation^[19], large-scale quantitative investigations operationalizing these divergent pathways remain absent. This theoretical and empirical oversight is profound, as migration pathways reflect distinct configurations of agency, structural opportunity, and family dynamics that may persistently pattern psychosocial outcomes decades after urban settlement.

To systematically address this critical empirical gap, the present study delineates three explicit research objectives: (1) to develop and operationalize a theoretically grounded three-pathway typology (self-actualization, policy-driven, and family-dependent) capturing the heterogeneous settlement experiences of long-term migrant older adults; (2) to empirically examine how these divergent pathways are associated with multidimensional subjective well-being profiles (encompassing subjective social status, happiness, life satisfaction, and health satisfaction); and (3) to investigate whether these pathway-specific associations operate as an independent dimension of social stratification, persisting robustly after adjusting for comprehensive socio-demographic and structural confounders. By disaggregating this heterogeneous population through a pathway-specific lens, this study seeks to advance theories of stratified aging and inform targeted intervention systems.

2. Methods

2.1. Study Design

We employed a cross-sectional, multi-site survey design with multi-stage stratified sampling to recruit long-term rural-to-urban migrant older adults across three distinct urban economies in China. This study was reviewed by the Ethics Committee of Shanghai Jian Qiao University and was deemed exempt from ethics approval as it involved survey-based research.

To mitigate geographic and economic selection bias, we strategically selected three cities representing different tiers of China's urban hierarchy:

Puyang: A representative third-tier prefecture-level city with moderate economic development (2023 per capita

GDP: ¥49,722), serving as our mid-tier urban reference and capturing migration experiences in China's vast network of medium-sized cities^[20].

Zhengzhou: A provincial capital and emerging first-tier city (2023 per capita GDP: ¥105,418), representing upper-mid urban contexts with substantial economic dynamism and large migrant populations^[21].

Shanghai: A global first-tier megacity (2022 per capita GDP: ¥190,300), representing highly-developed urban contexts with mature welfare systems but also intense cost-of-living pressures^[22].

This design explicitly addresses the methodological limitation of single-city studies by capturing the full spectrum of urban economic gradients that shape migrant older adults' settlement experiences and well-being outcomes.

Eligibility criteria were operationalized as follows: (1) Rural origin: self-reported continuous residence in rural areas (hukou registration and actual residence) before age 18; (2) Urban settlement: current de facto residence in a prefecture-level or higher-tier city for >5 consecutive years; (3) Age: ≥ 55 years at time of interview; (4) Migration pathway: classified into one of three theoretical pathways; (5) Cognitive capacity: score ≥ 4 on the Six-Item Cognitive Impairment Test to ensure valid self-report.

2.2. Data Collection

Collaborating with community-dwelling residents in the three cities, we disseminated recruitment posters with QR codes in community centers, parks, and WeChat groups of local older adult associations. At the same time, research assistants conducted door-to-door enumeration. Initial participants were encouraged to share the survey link with eligible peers in their social networks. The online questionnaire was administered via the Wenjuanxing platform, optimized for both smartphone and tablet use. To enhance participation, we provided ¥3–5 e-gift cards (value varied by city cost-of-living) upon completion. The survey remained active from January 2024 to December 2024.

2.3. Outcomes

Subjective Social Status (SSS): Measured using the MacArthur Scale of Subjective Social Status^[23]. Participants rated their perceived position on a 10-rung ladder relative

to others in their city, anchored at 0 (lowest) to 10 (highest). The scale demonstrated excellent test-retest reliability ($r = 0.83$) in our pilot study ($n = 86$).

Subjective Happiness (HS): Single-item measure: "How happy do you feel currently?" (1 = extremely unhappy to 10 = extremely happy). Single-item happiness measures correlate strongly ($r = 0.70$ – 0.85) with multi-item scales and are recommended for large-scale surveys^[24].

Subjective Satisfaction (SS): Single-item measure: "Overall, how satisfied are you with your life recently?" (0 = not at all satisfied to 10 = completely satisfied). This item demonstrated adequate convergent validity with the 5-item Satisfaction with Life Scale^[24].

Subjective Health Satisfaction (HEAL): Single-item measure: "How satisfied are you with your current health status?" (0 = very dissatisfied to 10 = very satisfied). Health satisfaction items predict mortality and healthcare utilization independent of objective health measures.

2.4. Migration Pathway

Migration pathways were classified based on participants' self-reported primary reason for their initial rural-to-urban relocation. To ensure mutually exclusive categorization and address potential overlapping motivations, participants were presented with a single-choice survey question: "What was the single most important reason for your initial permanent relocation from the rural area to the city?" The survey responses were then coded into three distinct theoretical pathways as follows:

Self-Actualization Pathway (Type A): Participants were assigned to this group if they selected survey options reflecting proactive personal achievement: "pursuing higher education," "military service and subsequent placement," "seeking upward mobility through employment/wage labor," or "entrepreneurial investment/business." These individuals established independent socioeconomic foundations in cities prior to retirement, representing agentic urbanization with high pre-migration human and social capital.

Policy-Driven Pathway (Type B): Participants were assigned to this group if they selected structurally induced reasons: "state-orchestrated land expropriation," "government relocation/ecological resettlement programs," or "housing compensation." This reflects passive urbanization, where relocation results from external policy decisions rather than

personal choice, often involving forced resettlement in designated communities.

Family-Dependent Pathway (Type C): Participants were assigned to this group if they selected kinship-based reasons: “assisting adult children with childcare,” “seeking eldercare from adult children,” or “family reunification.” This pathway involves migrating primarily to assist adult children with childcare or eldercare, entering cities through “following-migration” (*suiqian*) or “dependent-residence” (*touqin*) statuses. This entails partial or complete severance of economic and social ties with origin communities, positioning older adults in dependent roles within children’s households.

2.5. Covariates

We controlled for a comprehensive set of socio-demographic, health, and settlement characteristics to isolate the unique associations of migration pathways with subjective well-being. Socio-demographics included age (measured continuously in years) and gender (dummy-coded with male as the reference category). Educational attainment was operationalized as a three-level categorical variable (primary school or below, middle school, and college or university) with primary education as the reference group. Marital status comprised four categories (married, widowed, divorced, and never married), using married as the reference, while employment status distinguished between full-time, part-time, and unemployed/retired individuals, with full-time serving as the baseline. Subjective economic status—an important predictor of well-being among migrants—was captured through a three-point self-assessment (hard, normal, comfortable), with financial hardship as the reference category. To account for urban contextual effects, we included city of residence (Shanghai, Zhengzhou, Puyang) as a three-level categorical variable with Shanghai as the reference. Health-related controls encompassed a binary indicator for chronic disease presence and body mass index (BMI) calculated from self-reported height and weight and treated continuously. Finally, urban duration was modeled as a categorical variable (<10 years, 10–20 years, >20 years) with the shortest duration as the reference, though we also tested continuous specifications in sensitivity analyses.

Statistical Analysis

The proposed analytical model of this study posits that migration pathway serves as a foundational stratifying dimension that corresponds to long-term subjective well-being, independent of subsequent life-course accumulations. To test this framework, we modeled four distinct dimensions of well-being (subjective social status, happiness, life satisfaction, and health satisfaction) against the three migration pathways. To isolate these associations from potential confounders, the model systematically incorporates three blocks of covariates: socio-demographic factors, health indicators, and urban settlement characteristics. Given that the four outcome variables were measured on 10-point and 11-point scales, they were treated as continuous variables, making Ordinary Least Squares (OLS) multivariable linear regression the most appropriate modeling strategy for our analyses.

All statistical analyses were performed using R software (version 4.3.1). To ensure methodological transparency, we utilized a specific suite of analytical tools within this environment: data manipulation and preprocessing were conducted using the *dplyr* package; descriptive statistics were generated utilizing the *tableone* package. The primary Ordinary Least Squares (OLS) multivariable linear regression models were estimated using the base *stats* package. Continuous variables were described as mean $\pm$ standard deviation (SD) or median (interquartile range, IQR), while categorical variables were presented as frequencies and percentages. Baseline characteristics across the three migration pathway groups were compared using one-way ANOVA (or Kruskal–Wallis test for non-normally distributed data) for continuous variables and Chi-square tests for categorical variables.

For each of the four subjective well-being outcomes, we constructed sequential multivariable linear regression models to assess the robustness of the associations. First, univariate models were fitted to initially screen covariates. Second, an intermediate multivariable model (Model 1) was built including the migration pathway and covariates that showed preliminary statistical significance. Finally, a fully adjusted multivariable model (Model 2) was fitted. Serving as our primary model, Model 2 incorporated all theoretically relevant covariates simultaneously to rigorously control for potential confounding and avoid omitted variable bias. Migration pathway was treated as a categorical variable with the Self-Actualization Pathway (Type A) as the reference group.

Statistical significance was set at $p < 0.05$ for two-sided tests, and standardized coefficients (β) with 95% confidence intervals were reported.

3. Results

Table 1 presents the baseline characteristics of the total sample ($n = 822$) and across the three migration path-

ways. The overall sample had a mean age of 63.79 ± 6.49 years, with 55.47% female participants. The majority had primary school education or below (73.24%), were married (73.84%), and were unemployed or retired (77.98%). Over half reported experiencing economic hardship (53.04%), and 35.04% had at least one chronic disease. The average BMI was 21.56 ± 4.26 kg/m², falling within the normal range for Asian populations.

Table 1. Baseline characteristics of the total sample and by migration pathway.

Variables	Overall (n = 822)	Self-Actualization Pathway (n = 277)	Policy-Driven Pathway (n = 267)	Family-Dependent Pathway (n = 278)	<i>p</i>
Age (years)	63.79 $\pm$ 6.49	64.36 $\pm$ 6.84	64.10 $\pm$ 6.17	62.94 $\pm$ 6.37	0.019
Gender (female)	456 (55.47%)	160 (57.76%)	136 (50.94%)	160 (57.55%)	0.192
Education					<0.001
Primary school or below	602 (73.24%)	185 (66.79%)	206 (77.15%)	211 (75.90%)	
Middle school	186 (22.63%)	69 (24.91%)	53 (19.85%)	64 (23.02%)	
College or university	34 (4.14%)	23 (8.30%)	8 (3.00%)	3 (1.08%)	
Marital Status					0.456
Married	607 (73.84%)	200 (72.20%)	200 (74.91%)	207 (74.46%)	
Widowed	178 (21.65%)	68 (24.55%)	54 (20.22%)	56 (20.14%)	
Divorced	29 (3.53%)	6 (2.17%)	12 (4.49%)	11 (3.96%)	
Never married	8 (0.97%)	3 (1.08%)	1 (0.37%)	4 (1.44%)	
Employment					0.074
Full-time	123 (14.96%)	41 (14.80%)	51 (19.10%)	31 (11.15%)	
Part-time	58 (7.06%)	15 (5.42%)	20 (7.49%)	23 (8.27%)	
Unemployed	641 (77.98%)	221 (79.78%)	196 (73.41%)	224 (80.58%)	
Subjective Economic Status					0.562
Hard	436 (53.04%)	148 (53.43%)	147 (55.06%)	141 (50.72%)	
Normal	234 (28.47%)	84 (30.32%)	72 (26.97%)	78 (28.06%)	
Comfortable	152 (18.49%)	45 (16.25%)	48 (17.98%)	59 (21.22%)	
City					0.741
Shanghai	279 (33.94%)	101 (36.46%)	84 (31.46%)	94 (33.81%)	
Zhengzhou	194 (23.60%)	60 (21.66%)	65 (24.34%)	69 (24.82%)	
Puyang	349 (42.46%)	116 (41.88%)	118 (44.19%)	115 (41.37%)	
Chronic Diseases (yes)	288 (35.04%)	105 (37.91%)	82 (30.71%)	101 (36.33%)	0.183
Urban Duration					0.43
<10 years	372 (45.26%)	119 (42.96%)	126 (47.19%)	127 (45.68%)	
10–20 years	150 (18.25%)	60 (21.66%)	46 (17.23%)	44 (15.83%)	
>20 years	300 (36.50%)	98 (35.38%)	95 (35.58%)	107 (38.49%)	
BMI (kg/m ²)	21.56 $\pm$ 4.26	21.13 $\pm$ 4.26	21.48 $\pm$ 4.15	22.06 $\pm$ 4.32	0.049
Subjective Social Status	6.05 $\pm$ 2.82	6.21 $\pm$ 2.73	6.69 $\pm$ 2.55	5.29 $\pm$ 2.98	<0.001
Subjective Happiness	6.30 $\pm$ 2.57	4.92 $\pm$ 2.71	6.60 $\pm$ 2.32	7.39 $\pm$ 1.96	<0.001
Subjective Satisfaction	5.67 $\pm$ 2.83	5.13 $\pm$ 3.02	4.91 $\pm$ 2.79	6.93 $\pm$ 2.18	<0.001
Subjective Health Satisfaction	6.31 $\pm$ 2.70	7.12 $\pm$ 2.06	5.07 $\pm$ 3.01	6.68 $\pm$ 2.54	<0.001

Significant differences emerged across migration pathways on several key dimensions. Participants in the self-actualization pathway were significantly older (64.36 ± 6.84 years) compared to those in the family-dependent pathway (62.94 ± 6.37 years, $p = 0.019$). Educational attainment varied dramatically among groups ($p < 0.001$): the self-actualization group had the highest proportion of college or university graduates (8.30%), more than seven times higher than the family-dependent group (1.08%). Employment status also differed marginally ($p = 0.074$), with the policy-driven pathway showing the highest full-time employment

rate (19.10%). The family-dependent pathway exhibited the highest mean BMI (22.06 ± 4.32 kg/m², $p = 0.049$).

Importantly, no significant differences were observed across pathways for either city of residence ($p = 0.741$) or duration of urban settlement ($p = 0.430$), indicating that migrants were comparably distributed across Shanghai (33.94%), Zhengzhou (23.60%), and Puyang (42.46%), and had similar lengths of urban residence (45.26% <10 years, 18.25% 10–20 years, 36.50% >20 years). This distribution enhances the internal validity of our subsequent analyses by minimizing confounding from geographic or temporal

factors.

Notably, all four subjective well-being outcomes showed highly significant differences across pathways ($p < 0.001$ for each). The policy-driven pathway reported the highest subjective social status (6.69 ± 2.55), while the family-dependent pathway reported the lowest (5.29 ± 2.98). Paradoxically, despite their lower status, family-dependent migrants reported the highest subjective happiness (7.39 ± 1.96) and life satisfaction (6.93 ± 2.18), whereas self-actualization migrants reported the lowest happiness scores (4.92 ± 2.71). For health satisfaction, self-actualization migrants scored highest (7.12 ± 2.06) while policy-driven migrants scored lowest (5.07 ± 3.01). These baseline disparities underscore the heterogeneous experiences of long-term rural-to-urban

migrant older adults and set the stage for multivariable analyses examining pathway-specific predictors of well-being.

Table 2 presents regression results for subjective social status. Focusing on our primary, fully adjusted model (Model 2), migration pathway emerged as a robust correlate: the policy-driven pathway was associated with higher status than the self-actualization pathway ($\beta = 0.660$, $p = 0.004$), while the family-dependent pathway corresponded to significantly lower status ($\beta = -0.952$, $p < 0.001$). Notably, these pathway associations remained stable and robust across the univariate model and Model 1. In the fully adjusted Model 2, comfortable economic status ($\beta = 1.530$, $p < 0.001$) and unemployment/retirement ($\beta = 1.894$, $p < 0.001$) also demonstrated strong positive associations with status.

Table 2. Univariate and multivariate linear regression results for subjective social status (SSS).

Variables	Univariate Model		Multivariate Model 1		Multivariate Model 2	
	Coef [95% CI]	<i>p</i>	Coef [95% CI]	<i>p</i>	Coef [95% CI]	<i>p</i>
Age (years)	0.010 [-0.020, 0.040]	0.5	-	-	-0.023 [-0.053, 0.007]	0.134
BMI (kg/m ²)	0.015 [-0.031, 0.060]	0.525	-	-	0.019 [-0.024, 0.062]	0.385
Chronic Diseases (yes)	0.224 [-0.180, 0.629]	0.277	-	-	0.290 [-0.093, 0.673]	0.138
Subjective Economic Status						
Hard	Ref	Ref	Ref	Ref	Ref	Ref
Normal	0.134 [-0.310, 0.579]	0.553	0.140 [-0.283, 0.564]	0.516	0.379 [-0.250, 1.007]	0.237
Comfortable	1.081 [0.564, 1.597]	<0.001	1.096 [0.602, 1.589]	<0.001	1.530 [0.925, 2.134]	<0.001
Education						
Primary school or below	Ref	Ref	Ref	Ref	Ref	Ref
Middle school	-0.100 [-0.564, 0.364]	0.672	-	-	-0.172 [-0.612, 0.268]	0.443
College or university	0.689 [-0.287, 1.664]	0.166	-	-	0.956 [0.000, 1.911]	0.05
Employment						
Full-time	Ref	Ref	Ref	Ref	Ref	Ref
Part-time	0.994 [0.129, 1.859]	0.024	1.145 [0.311, 1.978]	0.007	1.216 [0.373, 2.059]	0.005
Unemployed	1.562 [1.027, 2.096]	<0.001	1.666 [1.149, 2.183]	<0.001	1.894 [1.347, 2.441]	<0.001
Gender (Female)	0.213 [-0.176, 0.601]	0.283	-	-	0.266 [-0.102, 0.634]	0.156
City						
Shanghai	Ref	Ref	Ref	Ref	Ref	Ref
Zhengzhou	0.161 [-0.357, 0.679]	0.543	-	-	-0.478 [-1.134, 0.179]	0.154
Puyang	0.085 [-0.360, 0.529]	0.709	-	-	0.337 [-0.285, 0.958]	0.288
Marital Status						
Married	Ref	Ref	Ref	Ref	Ref	Ref
Widowed	-0.181 [-0.653, 0.290]	0.451	-	-	-0.156 [-0.601, 0.290]	0.493
Divorced	-0.573 [-1.625, 0.478]	0.285	-	-	-0.517 [-1.518, 0.483]	0.311
Never married	-1.375 [-3.344, 0.594]	0.171	-	-	-0.949 [-2.804, 0.905]	0.315
Urban Duration						
<10 years	Ref	Ref	Ref	Ref	Ref	Ref
10–20 years	0.623 [0.089, 1.156]	0.022	0.638 [0.132, 1.145]	0.014	0.665 [0.160, 1.171]	0.01
>20 years	-0.124 [-0.552, 0.304]	0.57	-0.137 [-0.543, 0.269]	0.507	-0.154 [-0.560, 0.251]	0.454
Migration Pathways						
Self-Actualization	Ref	Ref	Ref	Ref	Ref	Ref
Policy-Driven	0.476 [0.011, 0.941]	0.045	0.573 [0.123, 1.022]	0.013	0.660 [0.206, 1.113]	0.004
Family-Dependent	-0.922 [-1.382, -0.461]	<0.001	-0.977 [-1.423, -0.532]	<0.001	-0.952 [-1.404, -0.500]	<0.001

Table 3 shows results for subjective happiness. In the primary fully adjusted model (Model 2), both the policy-driven ($\beta = 1.768$, $p < 0.001$) and family-dependent pathways ($\beta = 2.379$, $p < 0.001$) were strongly associated with higher

happiness compared to the self-actualization pathway. The robustness of these associations is evidenced by their consistency across Model 1 and Model 2. Furthermore, in Model 2, comfortable economic status ($\beta = 0.865$, $p = 0.001$), part-time

employment ($\beta = 1.003, p = 0.007$), unemployment/retirement ($\beta = 0.414, p = 0.021$), and never-married status ($\beta = 2.111, p = 0.010$) all retained significant positive associations.

Table 3. Univariate and multivariate linear regression results for subjective happiness (HS).

Variables	Univariate Model		Multivariate Model 1		Multivariate Model 2	
	Coef [95% CI]	p	Coef [95% CI]	p	Coef [95% CI]	p
Age (years)	-0.022 [-0.049, 0.005]	0.115	-	-	-0.024 [-0.050, 0.002]	0.07
BMI (kg/m ²)	0.012 [-0.029, 0.053]	0.573	-	-	-0.013 [-0.051, 0.024]	0.481
Chronic diseases (yes)	0.234 [-0.134, 0.602]	0.213	-	-	0.298 [-0.035, 0.631]	0.079
Subjective Economic Status						
Hard	Ref	Ref	Ref	Ref	Ref	Ref
Normal	0.104 [-0.302, 0.510]	0.616	0.134 [-0.234, 0.502]	0.476	0.149 [-0.397, 0.695]	0.592
Comfortable	0.746 [0.274, 1.219]	0.002	0.593 [0.164, 1.022]	0.007	0.865 [0.340, 1.391]	0.001
Education						
Primary school or below	Ref	Ref	Ref	Ref	Ref	Ref
Middle school	-0.313 [-0.735, 0.108]	0.145	-0.225 [-0.607, 0.157]	0.249	-0.238 [-0.620, 0.145]	0.223
College or university	-1.004 [-1.889, -0.118]	0.026	0.224 [-0.603, 1.051]	0.595	0.145 [-0.685, 0.976]	0.731
Employment						
Full-time	Ref	Ref	Ref	Ref	Ref	Ref
Part-time	1.221 [0.427, 2.016]	0.003	0.968 [0.238, 1.699]	0.009	1.003 [0.271, 1.735]	0.007
Unemployed	1.070 [0.579, 1.561]	<0.001	1.020 [0.561, 1.479]	<0.001	1.149 [0.673, 1.624]	<0.001
Gender (Female)	0.044 [-0.310, 0.398]	0.809	-	-	0.043 [-0.277, 0.363]	0.793
City						
Shanghai	Ref	Ref	Ref	Ref	Ref	Ref
Zhengzhou	0.071 [-0.400, 0.543]	0.766	-	-	-0.446 [-1.017, 0.124]	0.125
Puyang	0.041 [-0.365, 0.446]	0.844	-	-	0.065 [-0.475, 0.605]	0.814
Marital Status						
Married	Ref	Ref	Ref	Ref	Ref	Ref
Widowed	-0.512 [-0.939, -0.084]	0.019	-0.353 [-0.740, 0.034]	0.074	-0.334 [-0.722, 0.053]	0.091
Divorced	-0.014 [-0.967, 0.939]	0.976	-0.116 [-0.984, 0.752]	0.793	-0.141 [-1.011, 0.728]	0.75
Never married	2.106 [0.322, 3.890]	0.021	2.159 [0.545, 3.772]	0.009	2.111 [0.499, 3.724]	0.01
Urban Duration						
<10 years	Ref	Ref	Ref	Ref	Ref	Ref
10–20 years	0.015 [-0.471, 0.501]	0.952	0.198 [-0.241, 0.637]	0.376	0.245 [-0.195, 0.684]	0.275
>20 years	0.462 [0.072, 0.852]	0.02	0.406 [0.054, 0.759]	0.024	0.414 [0.062, 0.766]	0.021
Migration Pathways						
Self-Actualization	Ref	Ref	Ref	Ref	Ref	Ref
Policy-Driven	1.682 [1.287, 2.078]	<0.001	1.733 [1.339, 2.126]	<0.001	1.768 [1.373, 2.162]	<0.001
Family-Dependent	2.472 [2.080, 2.863]	<0.001	2.399 [2.008, 2.790]	<0.001	2.379 [1.986, 2.772]	<0.001

Table 4 presents subjective satisfaction results. Based on the fully adjusted multivariable analysis (Model 2), the family-dependent pathway was consistently linked to higher satisfaction ($\beta = 1.709, p < 0.001$), a pattern that remained robust across all model specifications. The policy-driven pathway showed no significant difference from the reference group ($\beta = -0.212, p = 0.358$). Additionally, Model 2 revealed that comfortable economic status ($\beta = 1.136, p < 0.001$) and unemployment/retirement ($\beta = 0.967, p = 0.001$) were positively related to satisfaction, while residence in Zhengzhou was associated with lower satisfaction relative to Shanghai ($\beta = -0.879, p = 0.009$).

Table 4. Univariate and multivariate linear regression results for subjective satisfaction (SS).

Variables	Univariate Model		Multivariate Model 1		Multivariate Model 2	
	Coef [95% CI]	p	Coef [95% CI]	p	Coef [95% CI]	p
Age (years)	0.001 [-0.029, 0.031]	0.952	-	-	0.000 [-0.030, 0.030]	0.989
BMI (kg/m ²)	0.044 [-0.001, 0.090]	0.058	-	-	0.028 [-0.015, 0.071]	0.201
Chronic Diseases (yes)	0.215 [-0.191, 0.622]	0.298	-	-	0.141 [-0.242, 0.524]	0.47
Subjective Economic Status						
Hard	Ref	Ref	Ref	Ref	Ref	Ref
Normal	-0.262 [-0.709, 0.184]	0.249	-0.300 [-0.721, 0.122]	0.163	-0.433 [-1.060, 0.195]	0.176
Comfortable	0.847 [0.328, 1.366]	0.001	0.678 [0.187, 1.169]	0.007	1.136 [0.532, 1.740]	<0.001
Education						
Primary school or below	Ref	Ref	Ref	Ref	Ref	Ref
Middle school	-0.033 [-0.499, 0.434]	0.891	-	-	-0.084 [-0.524, 0.355]	0.706
College or university	-0.552 [-1.532, 0.428]	0.269	-	-	0.105 [-0.850, 1.059]	0.83

Table 4. *Cont.*

Variables	Univariate Model		Multivariate Model 1		Multivariate Model 2	
	Coef [95% CI]	<i>p</i>	Coef [95% CI]	<i>p</i>	Coef [95% CI]	<i>p</i>
Employment						
Full-time	Ref	Ref	Ref	Ref	Ref	Ref
Part-time	1.048 [0.172, 1.925]	0.019	0.771 [−0.059, 1.600]	0.069	0.763 [−0.078, 1.605]	0.075
Unemployed	1.201 [0.660, 1.743]	<0.001	0.972 [0.457, 1.486]	<0.001	0.967 [0.421, 1.514]	0.001
Gender (Female)	−0.134 [−0.524, 0.257]	0.502	-	-	−0.216 [−0.584, 0.152]	0.249
City						
Shanghai	Ref	Ref	Ref	Ref	Ref	Ref
Zhengzhou	0.036 [−0.484, 0.556]	0.891	-	-	−0.879 [−1.534, −0.224]	0.009
Puyang	0.197 [−0.250, 0.643]	0.388	-	-	−0.077 [−0.697, 0.544]	0.808
Marital Status						
Married	Ref	Ref	Ref	Ref	Ref	Ref
Widowed	−0.374 [−0.847, 0.100]	0.122	-	-	−0.275 [−0.720, 0.170]	0.225
Divorced	−0.255 [−1.311, 0.800]	0.635	-	-	−0.234 [−1.233, 0.766]	0.647
Never married	−1.398 [−3.374, 0.579]	0.165	-	-	−1.567 [−3.419, 0.285]	0.097
Urban Duration						
<10 years	Ref	Ref	Ref	Ref	Ref	Ref
10–20 years	−0.063 [−0.601, 0.474]	0.817	-	-	0.121 [−0.384, 0.625]	0.639
>20 years	0.267 [−0.165, 0.698]	0.225	-	-	0.239 [−0.166, 0.644]	0.247
Migration Pathways						
Self-Actualization	Ref	Ref	Ref	Ref	Ref	Ref
Policy-Driven	−0.223 [−0.676, 0.229]	0.332	−0.199 [−0.646, 0.247]	0.381	−0.212 [−0.665, 0.241]	0.358
Family-Dependent	1.798 [1.351, 2.246]	<0.001	1.728 [1.285, 2.170]	<0.001	1.709 [1.257, 2.161]	<0.001

Table 5 shows subjective health satisfaction results. In our primary fully adjusted model (Model 2), policy-driven migrants exhibited a prominent negative association with health satisfaction ($\beta = -1.970$, $p < 0.001$), and family-dependent migrants also showed lower health satisfaction ($\beta = -0.538$, $p = 0.013$) compared to self-actualization migrants. These

key pathway patterns were robustly observed in Model 1 as well. Other significant correlates in the fully adjusted Model 2 included older age ($\beta = -0.041$, $p = 0.004$), comfortable economic status ($\beta = 0.907$, $p = 0.002$), part-time employment ($\beta = 1.310$, $p = 0.001$), unemployment/retirement ($\beta = 1.093$, $p < 0.001$), and >20 years of urban duration ($\beta = 0.692$, $p < 0.001$).

Table 5. Univariate and multivariate linear regression results for subjective health satisfaction (HEAL).

Variables	Univariate Model		Multivariate Model 1		Multivariate Model 2	
	Coef [95% CI]	<i>p</i>	Coef [95% CI]	<i>p</i>	Coef [95% CI]	<i>p</i>
Age (years)	−0.028 [−0.056, 0.001]	0.056	-	-	−0.041 [−0.069, −0.013]	0.004
BMI (kg/m ²)	−0.008 [−0.051, 0.036]	0.723	-	-	−0.010 [−0.050, 0.030]	0.632
Chronic diseases (yes)	0.132 [−0.256, 0.520]	0.504	-	-	0.013 [−0.347, 0.373]	0.943
Subjective Economic Status						
Hard	Ref	Ref	Ref	Ref	Ref	Ref
Normal	0.228 [−0.201, 0.656]	0.298	0.134 [−0.265, 0.532]	0.51	−0.101 [−0.691, 0.489]	0.736
Comfortable	0.712 [0.214, 1.210]	0.005	0.625 [0.161, 1.090]	0.008	0.907 [0.340, 1.475]	0.002
Education						
Primary school or below	Ref	Ref	Ref	Ref	Ref	Ref
Middle school	0.278 [−0.167, 0.722]	0.22	-	-	0.162 [−0.251, 0.575]	0.443
College or university	0.912 [−0.022, 1.846]	0.056	-	-	0.887 [−0.010, 1.784]	0.053
Employment						
Full-time	Ref	Ref	Ref	Ref	Ref	Ref
Part-time	1.188 [0.350, 2.026]	0.006	1.130 [0.346, 1.914]	0.005	1.310 [0.519, 2.101]	0.001
Unemployed	1.057 [0.539, 1.575]	<0.001	0.821 [0.335, 1.307]	0.001	1.093 [0.580, 1.607]	<0.001
Gender (Female)	−0.147 [−0.519, 0.226]	0.44	-	-	−0.296 [−0.642, 0.050]	0.093
City						
Shanghai	Ref	Ref	Ref	Ref	Ref	Ref
Zhengzhou	−0.298 [−0.795, 0.198]	0.238	-	-	−0.720 [−1.336, −0.104]	0.022
Puyang	−0.252 [−0.678, 0.175]	0.247	-	-	−0.284 [−0.867, 0.300]	0.34
Marital Status						
Married	Ref	Ref	Ref	Ref	Ref	Ref
Widowed	−0.126 [−0.578, 0.326]	0.584	-	-	−0.090 [−0.509, 0.328]	0.672
Divorced	−0.834 [−1.841, 0.174]	0.105	-	-	−0.659 [−1.599, 0.280]	0.169
Never married	1.274 [−0.613, 3.161]	0.185	-	-	1.032 [−0.709, 2.774]	0.245

Table 5. *Cont.*

Variables	Univariate Model		Multivariate Model 1		Multivariate Model 2	
	Coef [95% CI]	<i>p</i>	Coef [95% CI]	<i>p</i>	Coef [95% CI]	<i>p</i>
Urban Duration						
<10 years	Ref	Ref	Ref	Ref	Ref	Ref
10–20 years	–0.434 [–0.941, 0.073]	0.093	–0.507 [–0.984, –0.031]	0.037	–0.468 [–0.942, 0.006]	0.053
>20 years	0.726 [0.319, 1.133]	<0.001	0.672 [0.290, 1.053]	0.001	0.692 [0.312, 1.072]	<0.001
Migration Pathways						
Self-Actualization	Ref	Ref	Ref	Ref	Ref	Ref
Policy-Driven	–2.044 [–2.476, –1.613]	<0.001	–2.046 [–2.468, –1.623]	<0.001	–1.970 [–2.395, –1.544]	<0.001
Family-Dependent	–0.439 [–0.866, –0.012]	0.044	–0.557 [–0.975, –0.138]	0.009	–0.538 [–0.963, –0.114]	0.013

4. Discussion

This study provides the first empirical evidence that migration pathways function as distinct “master statuses” associated with long-term subjective well-being among rural-to-urban migrant older adults in China. Our three-pathway typology reveals a complex stratification system where objective achievements and subjective experiences diverge in theoretically meaningful ways. Contrary to simplistic assumptions that urban settlement uniformly enhances well-being, we demonstrate that how older people migrate corresponds to their psychosocial outcomes decades later. The persistence of pathway associations after exhaustive covariate adjustment—encompassing socio-demographics, health, settlement duration, and urban context—confirms that migration pathway is not merely a proxy for resource differentials but an independent dimension of stratified aging.

Self-actualization migrants, despite possessing the highest human capital and independent socioeconomic foundations, consistently reported the lowest subjective happiness (Model 2: $\beta = 1.768$, $p < 0.001$ for policy-driven; $\beta = 2.379$, $p < 0.001$ for family-dependent, both relative to self-actualization). This finding challenges the “resource accumulation” hypothesis^[25] and aligns with the life course principle of linked lives^[26]: early agentic migration often required severing kinship ties, delaying marriage, and maintaining continuous labor force participation, which may deplete emotional reserves in later life. Their elevated subjective social status (SSS) in Model 2 (policy-driven $\beta = 0.660$, $p = 0.004$ higher; family-dependent $\beta = -0.952$, $p < 0.001$ lower) reflects achievement-based identities, yet this status capital does not translate into emotional well-being—suggesting a decoupling of status and happiness unique to this pathway. Their relatively high health satisfaction (Model 2: $\beta = -1.970$, $p < 0.001$ for policy-driven disadvantage) likely re-

flects better healthcare navigation skills and residual income advantages.

Policy-driven migrants exhibited the highest SSS (Model 2: $\beta = 0.660$, $p = 0.004$), suggesting that state-sanctioned land compensation confers legitimate status recognition through formal hukou conversion and property rights. However, this status premium coexists with severe health satisfaction deficits (Model 2: $\beta = -1.970$, $p < 0.001$). This status-health paradox reflects stress process theory^[27–29]: forced resettlement, loss of ancestral land, and disruption of agrarian lifestyles may generate chronic stressors that erode health perceptions despite material gains. The lack of pathway effects on happiness and satisfaction indicates that policy-driven migrants achieve “normative” emotional well-being but carry a hidden health burden, highlighting the importance of measuring multiple SWB dimensions to capture complete pathway-specific vulnerabilities.

Family-dependent migrants present the most striking paradox: despite the lowest SSS (Model 2: $\beta = -0.952$, $p < 0.001$), they reported the highest happiness (Model 2: $\beta = 2.379$, $p < 0.001$) and satisfaction (Model 2: $\beta = 1.709$, $p < 0.001$). This status-subjective well-being reversal validates social integration theory: dense kinship networks and intergenerational solidarity provide emotional resources that buffer status deficits^[30, 31]. Their migration motivation—childcare and eldercare—aligns with cultural filial expectations, generating role-based meaning that enhances cognitive-emotional well-being. However, their modest health satisfaction deficit (Model 2: $\beta = -0.538$, $p = 0.013$) suggests that dependent status may restrict healthcare autonomy or create caregiving strain, requiring targeted interventions.

Comfortable economic status demonstrated remarkably consistent positive associations across all four outcomes (SSS: $\beta = 1.530$, $p < 0.001$; happiness: $\beta = 0.865$, $p = 0.001$; satisfaction: $\beta = 1.136$, $p < 0.001$; health: $\beta = 0.907$, $p =$

0.002), confirming it as a universal well-being determinant independent of pathway. This aligns with the resource buffer hypothesis: financial security mitigates stressors specific to each migration pathway^[32, 33]. The graded dose-response underscores that perceived economic adequacy matters more than objective income, particularly for older adults managing urban living costs.

For employment status, the counterintuitive finding that unemployment/retirement > full-time employment across all SWB outcomes (e.g., satisfaction: Model 2 $\beta = 0.967$, $p = 0.001$) reflects the age-composition effect of our sample (mean age 63.8 years). For older adults, retirement signals successful completion of work roles and transition to leisure, not labor market failure. The positive coefficient likely captures role relief—exiting physically demanding urban jobs—and enhanced family time, particularly for family-dependent migrants. Part-time employment also showed positive effects (health satisfaction: $\beta = 1.310$, $p = 0.001$), suggesting that flexible work preserves income without compromising well-being.

The 10–20 year duration was associated with higher SSS (Model 2: $\beta = 0.665$, $p = 0.010$), indicating a “sweet spot” where migrants establish community standing but retain fresh memories of rural origins that facilitate status comparisons. Conversely, >20 years duration enhanced happiness (Model 2: $\beta = 0.414$, $p = 0.021$) and health satisfaction (Model 2: $\beta = 0.692$, $p < 0.001$), reflecting acculturation dividends: deep social network embedding, healthcare system familiarity, and stabilized living arrangements. The lack of SSS gains after 20 years suggests status hierarchies become “locked in” over time, consistent with cumulative disadvantage theory^[34].

For the urban context, Zhengzhou’s negative association with satisfaction (Model 2: $\beta = -0.879$, $p = 0.009$) reveals mid-tier city stress: rapid development without Shanghai’s cosmopolitan tolerance or Puyang’s lower cost of living creates “relative deprivation” among migrants. Shanghai showed no advantage despite higher resources, suggesting that megacity intensity may offset structural benefits for older adults. Puyang’s neutrality indicates that smaller cities provide adequate integration contexts when economic gradients are modest.

Never-married status positively predicted happiness (Model 2: $\beta = 2.111$, $p = 0.010$), a surprising finding that may

reflect selection effects: childless, never-married older adults in our sample may have greater autonomy and fewer caregiving burdens, particularly salient for family-dependent migrants whose migration is motivated by kinship obligations. Widowed and divorced statuses showed no effects, indicating that marital loss does not uniquely disadvantage migrant older adults when controlling for other resources^[35, 36].

The Health Satisfaction Gradient. Older age predicted lower health satisfaction (Model 2: $\beta = -0.041$, $p = 0.004$) but not other SWB dimensions, confirming that age primarily operates through physiological rather than psychosocial pathways in this population. The null effect of chronic diseases across all outcomes is striking and may reflect response shift: long-term migrants recalibrate health expectations based on urban medical access, diminishing objective disease impact on subjective ratings^[37–39].

The lack of gender effects contradicts general population studies where women report lower SWB. Among rural-to-urban migrant older adults, gendered migration selectivity may operate: women who successfully migrate may possess unmeasured resilience factors that neutralize disadvantages. Similarly, education’s limited impact (only college-level significant for SSS in Model 2: $\beta = 0.956$, $p = 0.050$) reflects floor effects: with 73% having primary education or below, educational variance is insufficient to drive SWB differences beyond status perception. This suggests that migration pathway outweighs human capital effects for this cohort. BMI’s complete lack of association underscores that objective health metrics matter less than subjective perceptions for migrant older adults’ well-being. This may reflect cultural body ideals where moderate overweight is not stigmatized, or that migrants prioritize settlement stressors over weight concerns.

While the cross-sectional nature of this study precludes the formal testing of causal mediation, the observed empirical patterns offer a heuristic foundation for postulating pathway-specific stress mechanisms. Specifically, the profile of policy-driven migrants may be conceptually interpreted through the lens of status inconsistency: while institutional integration via formal hukou conversion confers objective status capital, the structural displacement and severance from agrarian livelihoods may concurrently act as latent, health-eroding stressors. For family-dependent migrants, the divergence between diminished subjective social status and ele-

vated emotional well-being aligns theoretically with the dynamics of role overload and the stress-buffering hypothesis; kinship-based caregiving imposes status-depleting burdens but simultaneously yields role-based emotional dividends. Conversely, the psychosocial profile of self-actualization migrants suggests the plausible operation of achievement fatigue, wherein decades of agentic upward mobility secure structural advantage yet systematically deplete emotional reserves. Importantly, we acknowledge that these constructs, including status inconsistency, role overload, and achievement fatigue, remain theoretical postulates used to contextualize our findings rather than empirically verified latent variables. Future research must rigorously operationalize these mechanisms, specifically by measuring structural ambivalence, chronic daily stressors, and role strain, to subject these explanatory frameworks to formal empirical validation^[40–44].

Beyond the specific institutional context of China, our empirical findings conceptually generalize to macro-level sociological paradigms of global migration and aging. By embedding our results within the broader literature, it becomes evident that the three-pathway typology possesses transferable theoretical utility for gerontological research globally. In developed welfare states, a parallel stratification system exists among aging immigrants: individuals who integrated through skilled immigration programs, refugee resettlement, and family reunification exhibit well-being divergences that remarkably mirror our self-actualization, policy-driven, and family-dependent pathways, respectively^[45–47]. This parallelism suggests that the latent mechanisms we identified are not culturally bound anomalies, but rather generalizable psychosocial responses to divergent structural modes of assimilation. Furthermore, in Global South contexts experiencing rapid, state-led urbanization, such as India, Nigeria, and Indonesia, our findings regarding the policy-driven pathway enrich the global literature on displacement-induced health deficits^[48, 49]. Consequently, this study generalizes the stress process and social integration theories across diverse geographical migration flows, informing advocacy for holistic, pathway-targeted relocation programs and cross-cultural gerontological interventions that account for macro-structural stratification.

This study has several limitations. First, the cross-sectional design makes our analyses susceptible to selection

bias and endogeneity. Selection into specific migration pathways is not random; it may be largely influenced by pre-migration socioeconomic status, baseline health, personality, family resources, and institutional access. Because these unobserved pre-migration factors can simultaneously shape long-term subjective well-being, our findings represent robust associations rather than independent causal impacts of the pathways themselves. Second, self-reported measures of migration pathway and SWB may introduce recall bias and social desirability effects, though using validated scales mitigates this concern. Third, our reliance on single-item measures for subjective well-being dimensions, while practical for reducing cognitive burden, inherently limits our methodological rigor. Single-item measures are more susceptible to random measurement error and preclude the calculation of internal consistency reliability metrics commonly available for multi-item scales. Future studies should incorporate brief multi-item scales to enhance measurement precision. Fourth, online sampling may underrepresent digitally excluded older adults, particularly in less-developed cities, potentially overestimating well-being. Fifth, we did not measure pathway-specific mediators that could explain mechanism pathways; future studies should incorporate these constructs. Sixth, our sample is limited to three cities; generalizability to other urban tiers or rural-to-urban migrants in Western China requires verification. Seventh, the age threshold (≥ 55 years) captures early retirement but may miss younger migrant cohorts with different experiences; extending to age 45 could reveal life course variations.

Future research should employ mixed-methods designs to qualitatively unpack the “why” behind our quantitative patterns, particularly the happiness paradox of family-dependent migrants. Longitudinal cohort studies tracking migrants from pre- to post-movement would isolate pathway effects from selection. Intervention experiments testing pathway-tailored support could establish causality and inform scalable policies. Finally, comparative studies across developing countries could examine whether our typology generalizes beyond China’s institutional context.

5. Conclusions

Aligning with our stated research objectives, this study confirms that the rural-to-urban migrant older adult pop-

ulation is not a monolithic entity but is profoundly stratified by the trajectories of their initial urban settlement. Addressing our first and second objectives, the empirical application of our three-pathway typology revealed distinct, multidimensional well-being profiles: the self-actualization pathway is characterized by high status but depleted emotional well-being; the policy-driven pathway yields structural status but significant health satisfaction deficits; and the family-dependent pathway exhibits diminished social status yet paradoxical advantages in happiness and life satisfaction. Addressing our third objective, we demonstrated that these pathway configurations serve as an independent, fundamental axis of social stratification, maintaining robust associations with well-being even after exhaustive covariate adjustment. Ultimately, these conclusions compel policymakers and social workers to move beyond generalized demographic categories and develop pathway-targeted support systems that address the unique psychosocial and structural vulnerabilities inherent to each migration trajectory.

Author Contributions

Conceptualization, J.Z. and Y.S.; methodology, J.Z.; software, X.S.; validation, X.S., Y.S. and J.Z.; formal analysis, Y.S.; investigation, J.Z.; resources, X.S.; data curation, Y.S.; writing—original draft preparation, X.S., Y.S. and J.Z.; writing—review and editing, X.S., Y.S. and J.Z.; visualization, X.S.; supervision, Y.S.; project administration, J.Z.; funding acquisition, J.Z. All authors have read and agreed to the published version of the manuscript.

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Institutional Review Board Statement

The study was conducted in accordance with the Declaration of Helsinki. Ethical review and approval were waived for this study by the Ethics Committee of Shanghai Jian Qiao University, because the research involved only anonymous questionnaires and did not collect any personally identifiable information; the study posed no more than minimal risk to participants, and thus formal approval was not required under

the institution's policy. No protocol code was assigned.

Informed Consent Statement

Informed consent was obtained from all subjects involved in the study.

Data Availability Statement

The datasets used and/or analyzed during the current study are available from the corresponding authors upon reasonable request.

Conflicts of Interest

The authors declare no conflict of interest.

AI Use Statement

The authors declare that no artificial intelligence (AI) tools were used in the preparation of this manuscript.

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