

# The Impacts of Housing Assistance, Family Support, Personal Income, and Hobby Engagement on Young People's Life Satisfaction in Shenzhen: Moderating Role of Family Support

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## ARTICLE INFO

## ABSTRACT

The aim of this study was to explore the effects of housing assistance, family support, personal income and hobby participation on life satisfaction of Shenzhen adolescents, with special attention to the moderating effect of family support. The data of Shenzhen youth were collected through questionnaire survey, and SPSS and Smart-PLS software were used for quantitative analysis. This study designed a questionnaire including housing assistance, family support, personal income, hobby participation and life satisfaction, and conducted a sample survey of young people in Shenzhen. To ensure the quality of the data, the reliability and validity tests were carried out, and the pre-processed data were cleaned. Through the structural equation model (SEM) analysis of Smart-PLS software, the direct influence of each factor on satisfaction and the moderating effect of family support were deeply discussed. The results show that housing assistance, family support, personal income and hobby participation significantly affect the life satisfaction of Shenzhen teenagers. Family support significantly moderates the effect of housing assistance on life satisfaction, enhancing its positive effects. Personal income and hobby participation also positively affect satisfaction, but the moderating effect of family support is weak. The study reveals the mechanisms influencing youth satisfaction in Shenzhen, highlights the key role of family support, provides a reference for policy makers to enhance youth satisfaction and well-being, and provides a theoretical and empirical basis for follow-up research.

**KEYWORDS:** Housing Assistance, Family Support, Personal Income, Hobby Engagement, Life Satisfaction, PLS-SEM

## 1.Introduction

Amid rapid societal development and increasing competition, young people face mounting pressures from work, relationships, and family, impacting their mental health (Liu et al., 2023). In Shenzhen—a major Chinese economic hub—housing affordability remains a key challenge, particularly for young adults and new residents. To address this, the government has introduced housing assistance policies, such as subsidized rentals and financial aid, helping alleviate economic strain and improve living conditions (Tong et al., 2024).

Family support plays a vital role in adolescents' psychological well-being, offering emotional stability and confidence during academic, social, and identity challenges (Chen, 2023). While personal income influences life satisfaction, Shenzhen's youth—many of whom are not yet employed—may experience this indirectly through family financial status (Piao & Managi, 2023). Additionally, hobby engagement fosters skill development, social connections, and stress relief, potentially enhancing life satisfaction (Park et al., 2024). Understanding these factors—housing policies, family support, income, and leisure activities—can help promote youth well-being in high-pressure urban environments.

## 2. Literature Review and Hypothesis Development

### 2.1 The Linkage between Housing Assistance and Life Satisfaction

Aubry et al. (2020) concluded that interventions providing permanent supportive housing and income assistance are effective in reducing homelessness and achieving housing stability, which in turn can greatly enhance the life satisfaction of the individuals affected. Jang et al. (2023) discovered that young families residing in homes subsidized by the government experienced higher life satisfaction. Nesse et al. (2020), through linear regression analysis, established a relationship between life satisfaction and factors such as employee support, housing satisfaction, and housing assistance. Tiderington et al. (2021) found that transitioning residents from stable permanent supportive housing (PSH) into mainstream housing, without the removal of embedded services, can lead to an improvement in life satisfaction.

Based on these findings, the following hypothesis is proposed:

H1: Housing assistance has a positive and statistically significant impact on life satisfaction.

### 2.2 The Linkage between Family Support and Life Satisfaction

Evans et al. (2022) discovered a positive association between family support and material assistance with higher life satisfaction. Rekawati et al. (2022) contended that family support and the burden of family significantly influence the quality of life for the elderly. Yan et al. (2021) identified a significant positive correlation between family socioeconomic status and life satisfaction. Furthermore, social support has been found to be positively correlated with the life satisfaction of adolescents. Chen, Fu, & Chang (2022) suggested that the correlation between family support and life satisfaction is more pronounced in elderly men compared to elderly women. The Piko (2023) study identified family support as the strongest predictor of life satisfaction. Drawing from these insights, we propose the hypothesis:

H2: Family support has a positive and statistically significant impact on life satisfaction.

### 2.3 The Linkage between Personal Income and Life Satisfaction

Celik et al. (2018) argued that being married, having a higher education, and possessing an income-generating job are factors that contribute to increased life satisfaction among older adults. Kotakorpi & Laamanen (2010) suggested that individuals with higher incomes can afford relatively high medical and health care expenditures, which positively impacts their personal life satisfaction. Suriyanrattakorn & Chang (2022) discovered that greater income inequality is associated with lower average life satisfaction at the national level. Aliyev et al. (2022) provided evidence through mediation analysis for the indirect effect of institutional trust on life satisfaction, mediated by perceived relative income.

Drawing from these insights, we propose the following hypothesis:

H3: Personal income has a positive and statistically significant impact on life satisfaction.

### 2.4 The Linkage between Hobby Engagement and Life Satisfaction

Cha et al. (2018) has highlighted the benefits of leisure activities for the elderly, noting that hobbies, sports, and social gatherings can enhance health and emotional support. The study suggests that increased duration of engagement in outdoor leisure activities is correlated with higher life satisfaction. Chen et al. (2022) also advocate for the positive impact of leisure activity participation on daily mood and overall life satisfaction. Park & Kang (2023) have identified involvement in hobby club activities as a significant factor for improving life satisfaction. Additionally, Yoon et al. (2020) have demonstrated that social and productive leisure activities, including religious practices, social gatherings, and volunteering, are notably linked to the quality of life for the elderly. Fancourt et al. (2022) found that having a hobby is associated with reduced depressive symptoms and increased self-reported health, happiness, and life satisfaction.

Building on these findings, we propose the following hypothesis:

H4: Engagement in hobbies has a positive and statistically significant impact on life satisfaction.

### 2.5 The moderating effect of family support on personal income, hobby participation, and life satisfaction

Matavelli et al. (2020) conducted an analysis on the moderating effect of social support on the relationship between perceived financial threat and life satisfaction in Portugal during the period of economic austerity. The quantitative analysis of the moderating effects of social support, including family support, indicates that social support can mitigate the negative impact of perceived economic threats on life satisfaction. Lazarevic et al. (2016) explored the direct and moderating effects of family support, with research demonstrating that both perceived financial stress and recent family support significantly impact life satisfaction. The presence of local family support lessens the negative impact of low income on life satisfaction. Garton et al. (2004) investigated the extent to which the family environment influences adolescents' participation in leisure activities. Quantitative research reveals that the satisfaction of adolescents with their leisure needs is associated with the perceived type of family environment. Adolescents who believe their families have a high positive orientation towards entertainment are significantly more satisfied with their leisure pursuits.

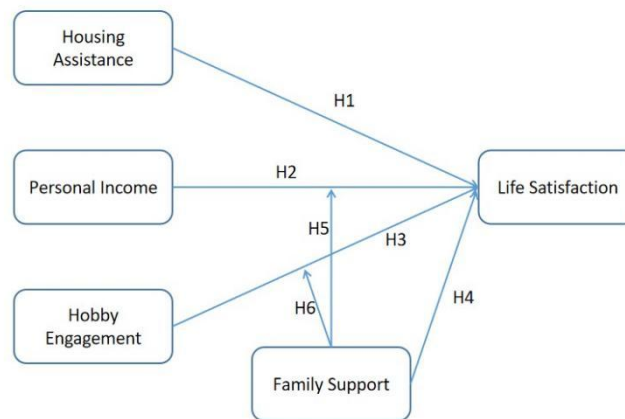
Drawing from these insights, we propose the following hypotheses:

H5: Family support positively moderates the relationship between personal income and life satisfaction.

H6: Family support positively moderates the relationship between hobby engagement and life satisfaction.

### 3. Hypothesis model

Based on the above assumptions, the researchers put forward the following conceptual framework model, which mainly studies the effects of housing assistance, personal income, interest participation and family support on life satisfaction, and secondly studies whether family support has a moderating relationship between personal income, interest participation and life satisfaction.



### 4. Research Methodology

#### 4.1 Study sample

N	S	N	S	N	S
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	1000000	384

Note: —N is population size. S is sample size.  
Source: Krejcie & Morgan, 1970

According to Krejcie & Morgan(1970), see Figure 3.4, the sample size was 384. To verify, we also performed a 95% confidence interval ( $\alpha=0.05$ ) calculation using Raosoft Inc. In a population size of 640,000, the sample size (n) is 384, meaning that 405 or more surveys are needed to reach 95% confidence. The error between the actual value and the survey value is within  $\pm 5\%$ . Therefore, the sample size for this study was 405.

#### 4.2 Instrument and measurement

In this study, housing assistance is measured utilizing the measurement items developed by Zhou (2016) and Colburn (2021), which are referenced to ensure the accuracy of our assessment. Family support is evaluated based on the scales established by Dunst, Jenkins & Trivette (1984) and Li & Wei (2021), and their respective measurement items are also incorporated into our research. Personal income is considered comprehensively, encompassing five key aspects: the equilibrium between income and living expenses, income stability, income diversity, expectations for future earnings, and comparisons of income levels. Prior research has measured personal income by Xu (2012) and Lin (2019). Hobby participation in this study is assessed across four dimensions: behavioral investment, cognitive engagement, emotional involvement, and social interaction, as previously measured by Liu & Huang (2003), Hou (2023), and Song (2014).

The measurement of life satisfaction, a critical construct in psychological and social science research, is approached using the Satisfaction with Life Scale (SWLS), a pivotal tool in the field since its inception by Diener et al. in 1985.

NO.	Dimension	Items	Measure ment	NO.	Dimension	Items	Measure ment
1	Housing Assistance	You receive a monetary subsidy from the government, such as a housing allowance or rent allowance.	Zhou (2016); Colburn (2021)	1	Personal Income	You think your income is adequate compared to the cost of living.	Xu (2012); Lin (2018)
2		The government's monetary subsidy provides substantial help to your housing expenses.		2		You feel good about your income stability.	
3		You think that the government's tax cuts, loan interest rate concessions, relaxed eligibility for housing and other policies have benefited you.		3		You think your sources of income are diverse.	
4		You think government-built low-rent housing, public rental housing, joint property housing, affordable housing and other affordable housing will be helpful to you.		4		You are optimistic about future income growth.	
5		You are satisfied with the government's housing assistance policy.		5		You think your income level is at or above the average level in Shenzhen.	
6				6		You are satisfied with your income level.	
NO.	Dimension	Items	Measure ment	NO.	Dimension	Items	Measure ment
1	Family Support	My family is willing to provide me with financial assistance when I need it.	Dunst, Jenkins & Trivette (1984); Li & Wei (2021)	1	Hobby engagement	I often spend some time on my hobbies.	Liu & Huang (2003); Hou (2023); Song (2014)
2		The financial support from my family helped me reduce the pressure of living in Shenzhen.		2		I am willing to devote more financial resources to my hobby within my ability.	
3		My family often express their love and care for me.		3		I always seek new learning opportunities to improve my hobby skills.	
4		My family gives me emotional comfort when I encounter difficulties.		4		I can show creativity and independent thinking in my hobby activities.	
5		I feel that my family gives me spiritual strength and courage.		5		My hobbies bring me great personal satisfaction.	
6		Family life care makes me feel loved and cared for.		6		My hobbies are an outlet for my emotional expression and stress release.	
7		My family supports my personal growth and self-improvement.		7		My hobbies enhance my social skills and relationships.	
				8		My hobby is an indispensable part of my life.	
NO.	Dimension	Items	Measure ment	NO.	Dimension	Items	Measure ment
1	Life satisfaction	In many ways, my life is perfect.	Pavot & Diener (1993)	1	Life satisfaction	In many ways, my life is perfect.	Pavot & Diener (1993)
2		I'm happy with my life.		2		I'm happy with my life.	
3		My life is in good shape.		3		My life is in good shape.	
4		I've gotten most of what I want out of life so far.		4		I've gotten most of what I want out of life so far.	
5		If I could live my life over again, I wouldn't change a thing.		5		If I could live my life over again, I wouldn't change a thing.	

### 4.3 Survey

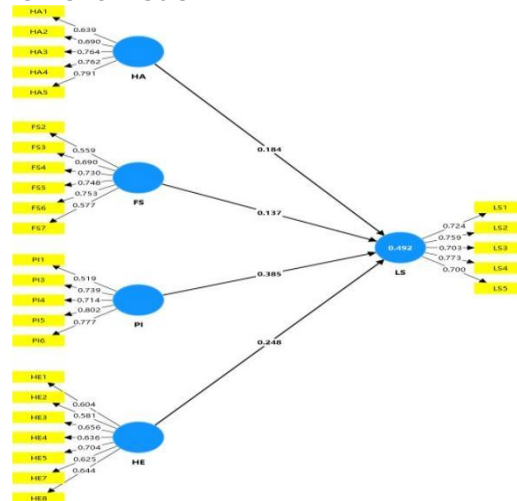
This study adopts the method of questionnaire survey, which is designed by questionnaire star, and then distributes questionnaires to the young people in Shenzhen to collect data, using typical sampling and random sampling. The data was collected from August to October 2024, and the respondents filled out questionnaires by scanning QR codes face-to-face.

### 4.4 Data analysis

After the data collection, the data was first cleaned. After the data was cleaned, a total of 446 valid data remained. smart-pls was used to further analyze the data and analyze the relationship between variables.

## 5.Results

### 5.1 Assessment of the measurement model



### Reliability and Convergent Validity

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
FS	0.765	0.780	0.836	0.463
HA	0.790	0.811	0.851	0.535
HE	0.755	0.759	0.826	0.405
LS	0.784	0.787	0.852	0.536
PI	0.757	0.776	0.839	0.515

The AVE values of HA, LS and PI are greater than 0.50, indicating that these constructs have good aggregation validity. The AVE values for FS and HE are slightly below 0.50, indicating the need for further testing and possible improvement.

	R-square	R-square adjusted
LS	0.492	0.488

R-squared represents the proportion of variation in the dependent variable (LS) explained by the model. 0.492 indicates that the model explains 49.2% of the dependent variable variation, and the adjusted r square is 0.488, indicating that the explanatory power of the model has been slightly adjusted, but it still indicates that the model has a good explanatory power.

### Discriminant Validity

Discriminant Validity HTMT table

	HA	HE	LS	PI
FS				
HA				
HE	0.284			
LS	0.544	0.601		
PI	0.527	0.462	0.777	

In this study, the HTMT values of all variables were less than 0.90, indicating that the discriminant validity of all potential variables was good.

Discriminant Validity Fornell-Larcker criterion table

	FS	HA	HE	LS	PI
FS	0.681				
HA	0.360	0.731			
HE	0.321	0.232	0.637		
LS	0.436	0.455	0.468	0.732	
PI	0.395	0.426	0.346	0.604	0.717

In the Fornell-Larcker criterion table, the value on the diagonal is the square root of the potential variable AVE, which is ((HA)0.731, FS) 0.681, (PI)0.717, (HE)0.637, (LS)0.732, respectively. Their values are greater than the correlation coefficients of each row and each column, which indicates that the potential variables have good discriminative effectiveness.

## 5.2 Assessment of the structural model

### Path Coefficients

Mean, STDEV, T values, P values

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics ( O/STDEV )	P values
FS -> LS	0.137	0.140	0.038	3.626	0.000
HA -> LS	0.184	0.185	0.044	4.152	0.000
HE -> LS	0.248	0.251	0.043	5.717	0.000
PI -> LS	0.385	0.385	0.049	7.859	0.000

In this study, all the independent variables (FS, HA, HE, PI) have positive path coefficients on the dependent variable (LS), indicating that they have a positive impact on life satisfaction. The T-statistic of all path coefficients is greater than 3.29, and the corresponding P-value is 0.000, indicating that these effects are statistically significant. PI (0.385), HE (0.248), HA (0.184) and FS (0.137) showed that personal income had the greatest impact on life satisfaction, followed by hobby participation, housing assistance and family support.

### Effect Sizes ( $f^2$ )

	f-square
FS -> LS	0.029
HA -> LS	0.052
HE -> LS	0.102
PI -> LS	0.209

(FS -> LS)  $f^2 = 0.029$ , indicating a moderate effect of family support on life satisfaction. (HA -> LS)  $f^2 = 0.052$  is a moderate effect, indicating that housing assistance has a moderate



effect on life satisfaction. (HE → LS)  $f^2 = 0.102$ , which is a large effect, indicating that interest participation has a strong impact on life satisfaction. (PI → LS)  $f^2 = 0.209$ , and personal income has a greater impact on life satisfaction. These  $f^2$  values indicate that personal income has the greatest impact on life satisfaction, followed by hobby participation, housing assistance, and family support. Overall, each variable had a range of moderate to large effects on life satisfaction.

### Collinearity Assessment

Collinearity Statistics Iner Model list

	VIF
FS → LS	1.302
HA → LS	1.294
HE → LS	1.194
PI → LS	1.400

The VIF values of the variables of life satisfaction (HA, FS, PI and HE) were 1.294, 1.302, 1.400 and 1.194, respectively. All of them are less than 3, indicating that there is no serious multicollinearity problem in the model. The results of regression analysis using these independent variables are reliable and stable.

### 5.3 Assessing the Direct Effect path coefficients

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics ( O/STDEV )	P values
FS → LS	0.137	0.140	0.038	3.626	0.000
HA → LS	0.184	0.185	0.044	4.152	0.000
HE → LS	0.248	0.251	0.043	5.717	0.000
PI → LS	0.385	0.385	0.049	7.859	0.000

These results show that personal income has the greatest impact on life satisfaction, followed by hobby involvement, housing assistance, and family support. The increase in all of these independent variables significantly increased life satisfaction.

### 5.4 Assessing the Moderating Effect

Path coefficients, Mean, STDEV, T values, p values

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics ( O/STDEV )	P values
FS → LS	0.154	0.157	0.040	3.835	0.000
HE → LS	0.268	0.270	0.047	5.750	0.000
PI → LS	0.437	0.436	0.050	8.771	0.000
FS × PI → LS	-0.068	-0.070	0.037	1.801	0.072
FS × HE → LS	0.035	0.035	0.034	1.048	0.295

The FS × PI interaction negatively affected life satisfaction ( $\beta = -0.068$ ,  $p = 0.072$ ), suggesting family support may weaken the income-life satisfaction link, though marginally significant. In contrast, FS × HE showed a non-significant positive trend ( $p = 0.295$ ), indicating insufficient evidence for its effect on life satisfaction. Both results fell short of traditional significance ( $p < 0.05$ ).

## 6. Discussion and implications

According to the test results of the direct relationship, it can be found that the path coefficients of all independent variables (FS, HA, HE, PI) on the dependent variable (LS) are positive, indicating that they have a positive impact on life satisfaction. The corresponding P-value was 0.000, indicating that these effects were statistically significant. Personal income had the greatest impact on life satisfaction, followed by hobby involvement, housing assistance and family support. According to the results of the moderating relationship test, family support did not have a moderating effect on the relationship between personal income and life satisfaction ( $P > 0.05$ ), and family support did not have a statistically moderating effect on the relationship between interest participation and life satisfaction ( $P > 0.05$ ).

## 7.Limitations and Future Research Recommendations

This study used typical and random sampling of Shenzhen youth, but the sample may lack representativeness due to its limited size and scope. The cross-sectional design and subjective variable measurements (e.g., housing assistance focusing only on government policies) may restrict the findings' accuracy and generalizability. Future research should expand the sample to include diverse regions and youth groups, increase sample size, and refine variable definitions (e.g., incorporating market factors and family efforts in housing assistance). Longitudinal data and advanced analytical methods could better reveal long-term effects and dynamic relationships between variables.

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