# Study on the Effect of Women's Education and the Number of Children on Well-Being
## Empirical Analysis Based on CGSS (2017) Data

Lei Han[1(✉)], Lan Gao[2], and Xinyi He[1]

[1] School of Human Settlements and Civil Engineering, Xi'an Eurasia University, Xi'an, China
13060376991@163.com
[2] Design Art College, Xijing University, Xi'an, China

**Abstract.** The relationship between women's educational attainment, number of children, and well-being are closely related to the layout of demographic strategies by academic and government departments. The survey investigates the relationship between female educational attainment, number of children, and happiness. These data are from 5716 females in the 2017 China General Social Survey (CGSS) through OLS regression analysis. Women's educational attainment indirectly promotes happiness by reducing the number of children, with the number of children as a mediating variable in the relationship between educational attainment and happiness. All sectors of society should provide more vocational education resources for women, build a socialized maternity cost protection system and create a relaxed employment environment to enhance women's happiness.

**Keywords:** women · educational attainment · number of children · well-being

## 1 Introduction

People have desired a happy existence with a sense of well-being since ancient times, the fundamental value and dominant ideology of modern civilization, and a firm foundation for social and economic advancement and productivity enhancement. Most research on women's well-being at home and abroad focus on their propensity to have children, marital status, job pressure, social capital, social security, and the domestic division of labor [1]. The majority of research on women's happiness is concentrated on material and economic factors. There is little research on women's psychological dynamics, growth, and future development. Research on the influence of factors like the number of children and education on happiness concentrates on a single element, neglecting interrelationships. Women's educational attainment increases their inclination to have children, which helps fertility initiatives. What role does the number of children have in the connection between women's educational attainment and happiness? Clarification of these concerns will contribute to the enrichment of empirical studies on the role of numerous elements in happiness. It will be crucial to expanding demographic research from the perspective of women's psychological activities.

## 2   Literature Review and Research Hypothesis

### 2.1   Study on the Effect of Female Education on Well-Being

In recent years, the protection of women's rights has been inseparable from the increase in education, and some studies have shown that solid female happiness stems from higher educational attainment. Wang Dan (2017) explored the factors influencing the happiness of the female group in three dimensions: individual factors, socio-economic factors, and subjective feelings, and the results of the study showed that there was a strong correlation between education and female happiness, the higher the female education, the higher the happiness, and the strength of female happiness showed an increasing trend with education [2].

**Therefore, this paper proposes hypothesis 1: there is a substantial correlation between women's education level and happiness, and women's happiness gradually increases as their education level rises.**

### 2.2   Mechanisms by Which Female Educational Attainment Affects the Number of Children

Xia Guoxiang and Huang Rongjie (2021) analyzed 7665 household data in the China Family Tracking Survey (CFPS). They concluded that the economic value of the fruits of labor is higher for highly educated women. The time and financial costs of having children are higher, which is a significant reason for their low fertility intentions [3]. It is an important reason why highly educated women have low fertility ambitions. The more educated women are, the better their careers are. They spend more energy and time at work. As a result, they have less time for their families, often weighing career advancement against their reproductive status and placing a greater emphasis on the quality rather than the quantity of their offspring. Therefore, the increased educational attainment of women raises the expense of having children, inhibiting population growth.

**This leads to hypothesis 2: Increasing female educational attainment will inhibit the increase in the number of children.**

### 2.3   Mechanisms Mediating the Effect of the Number of Female Children in Terms of Educational Attainment on Well-Being

The number of children is an essential factor influencing women's well-being. As the number of children increases for women, women have less access to education, take on more family responsibilities, and have less well-being. Wei Qiang, Su Hanyun (2020) found that social support had a mediating role in the function of family size on rural older adults' well-being [4]. The study found that social support mediated the effect of family size on the well-being of rural older adults and that social support was associated with the educational level of rural older adults.

**This leads to hypothesis 3: female educational attainment affects well-being by influencing the number of children, with the number of children mediating the effect of educational attainment on female well-being.**

In summary, the relationship between women's educational attainment, the number of children, and happiness have been studied at home and abroad. Still, there is a lack of research exploring the relationship between women's educational attainment, number of children, and happiness, and there is a lack of data analysis and empirical testing [5]. This paper conducts an OLS regression analysis using data from the 2017 China General Social Survey (CGSS) to investigate the different effects of having children on women's educational attainment and further explore the micro-level mechanisms of women's educational attainment that affect happiness.

## 3   Data Sources and Model Setting

### 3.1   Data Sources and Description of Variables

**Data Sources**
The 2017 China General Social Survey (CGSS), a detailed and scientific social survey covering most of China's provinces and municipalities, provided the foundation for the research data. Through interviews with survey participants, the CGSS examined the respondents' employment status, c family life, and psychological well-being to produce comprehensive research data.

**Variable Descriptions**
(1) Explanatory variable: Happiness. Happiness, as a psychological experience, is a subjective expression of respondents' psychological feelings and their evaluation of their overall life situation. The five categories are divided into five categories: "very happy, relatively happy, not happy or unhappy, relatively unhappy, and very unhappy," with each category being assigned a score of 5–1, with a higher score representing a stronger sense of happiness.

(2) Explanatory variable: educational attainment. Educational attainment is the educational background and overall status of women's education. It is the key explanatory variable in this paper, measured by the questionnaire item "What is your current highest level of education? The mediating variable, the number of children, i.e., the number of children a woman has, is measured by the questionnaire "How many children do you have?" it is measured by the questionnaire "How many children do you have?

(3) Control variables: as summarised by previous studies in the literature, scholars represented by Wang Dan (2017) believe that age, the presence of faith, health status, the presence of a spouse, the nature of the household registration, and the annual disposable income of the individual are all critical factors affecting women's happiness [2], with the specific description of each variable shown in Table 1.

### 3.2   Model Setting

In order to investigate whether the number of female children has a mediating effect in the effect of educational attainment on well-being, the following three models were constructed based on the concept of the mediating effect model and the above hypotheses:

**Table 1.** Description of variables

| Variable type | Variables | Variable symbols | Variable assignment |
|---|---|---|---|
| Explained variables | Happiness | happy | Very happy = 5, relatively happy = 4, can't say happy not happy = 3, relatively unhappy = 2, very unhappy = 1 |
| Explanatory variables | Education level | edu | Master's degree and above = 6, undergraduate degree = 5, college = 4, high school, secondary school, technical school = 3, junior high school = 2, primary school, private school = 1, illiterate/semi-literate = 0 |
| Intermediate variables | Number of children | child | Number of children (one) |
| Control variables | Age | age | Size of age (years) |
| | Marital Status | marriage | With spouse = 1, without spouse = 0 |
| | Nature of household | register | Rural households = 1, non-rural households = 0 |
| | Religious beliefs | religion | No religion = 1, religion = 0 |
| | Health Levels | health | Very healthy = 5, Fairly healthy = 4, Fairly healthy = 3, Fairly unhealthy = 2, Very unhealthy = 1 |
| | Annual disposable income of individuals | Income | Annual personal income ($) |
| Robustness tests Variables | Life satisfaction | Satisfaction | Completely satisfied = 5, Somewhat satisfied = 4, Don't care if satisfied = 3, Somewhat satisfied = 2, Completely dissatisfied = 1 |

Model 1:

$$happy = a_0 + a_1 \, edu + a_2 \, age + a_3 \, marrige + a_4 \, register + a_5 \, religion$$
$$+ \, a_6 \, health + a_7 \, income + \varepsilon_1$$

Model 2:

$$child = a_8 + a_9 \, edu + a_{10} \, age + a_{11} \, marrige + a_{12} \, register + a_{13} \, religion$$
$$+ \, a_{14} \, health + a_{15} \, income + \varepsilon_2$$

Model 3:

$$happy = a_{16} + a_{17} \, edu + a_{18} \, child + a_{19} \, age + a_{20} \, marriage + a_{21} \, register$$
$$+ \, a_{22} \, religion + a_{23} \, health + a_{24} \, income + \varepsilon_3$$

where $a_0$, $a_8$, and $a_{16}$ are constant terms and $\varepsilon_1$, $\varepsilon_2$, and $\varepsilon_3$ are residuals.

## 4  Empirical Findings and Analysis

Ordinary least squares (OLS) refer to using one or more variables to predict the explanatory variables in such a way that minimizes the sum of the distances from all observations on the scatter plot to the regression line [6]. The regression analysis adopts ordinary least squares (OLS) on the explanatory variable female happiness, educational attainment, the mediating variable number of children, and the control variables age, marital status, nature of the household, religion, health level, and annual disposable personal income. Table 2 contains the resulting results.

According to the results of Model 1, these results show that at the 1% level, female education has a positive and significant effect on happiness, with each unit increase in female education increasing satisfaction by 0.0813, which is consistent with Hypothesis 1. The empirical results of Model 2 show that at the 1% level, female education has a significant adverse effect on the number of children. With each unit increase in female education, the number of children. The empirical results of Model 2 show that at the 1% level, the number of children decreases by 0.148 with a 1 unit increase in female education, which again confirms Hypothesis 2.

The comparison between Model 3 and Model 2 illustrates that the number of female children has a mediating effect on the effect of education level on happiness. The total impact of female educational attainment on satisfaction in model 1 is 0.0813, which is significant. In model 2, there is a meaningful negative relationship between female educational attainment and happiness with a coefficient of −0.148. After adding the number of children mediating variable, the significant relationship between female educational attainment and satisfaction does not change. However, the coefficient decreases from a total effect of 0.0813 in model 1 to a direct impact of 0.0806 in model 3. The indirect effect of women's education on happiness through the number of children is 0.00699 (= −0.0472 * (−0.148)), i.e., the number of children has a mediating effect, which accounts for 8.59% (= −0.0472 * (−0.148)/0.0813) of the mediating development and

**Table 2.** Analysis of model regression results

| Variables | Model 1<br>happy | Model 2<br>child | Model 3<br>happy |
|---|---|---|---|
| edu | 0.08131305***<br>(8.57) | −0.1483987***<br>(−12.94) | 0.08061212***<br>(8.43) |
| child | | | −0.0472329**<br>(−0.46) |
| age | 0.00771586***<br>(9.37) | 0.03408665***<br>(30.79) | 0.00787686***<br>(8.81) |
| marriage | 0.12468798***<br>(4.79) | 0.11341459***<br>(2.86) | 0.12522367***<br>(4.80) |
| register | −0.01919948<br>(−0.77) | 0.49253973***<br>(15.57) | −0.01687308<br>(−0.66) |
| religion | 0.03501738<br>(1.09) | −0.27989774***<br>(−5.05) | 0.03633942<br>(1.13) |
| health | 0.19433275***<br>(16.53) | −0.03699796**<br>(−2.48) | 0.19415799***<br>(16.50) |
| income | 5.307e−08<br>(1.54) | −3.089e−08<br>(−0.76) | 5.292e−08<br>(1.54) |
| N | **5,716** | **5,716** | **5,716** |
| $R^2$ | **0.1039** | **0.3721** | **0.1039** |
| F | **72.75** | **463.68** | **63.68** |

Note: ***, ** and * denote significance levels at 1%, 5% and 10% respectively.

the increase in women's education enhances their happiness. At the same time, the number of children harms the role of educational attainment on well-being. The higher the education level of women, the more effort they put into their daily studies and work, the higher the reward for their labor, and the higher the cost of time left for childbearing, combined with the current high cost of childbirth and childcare [7]. The more educated women usually raise their offspring in a smaller but more refined way, with more fulfilling work and study, less family work, and a good salary, resulting in a stronger sense of well-being [8].

## 5   Conclusions

This paper explores the relationship between women's educational attainment, the number of children, and happiness based on the data of 5716 women from the 2017 China General Social Survey (CGSS). The empirical results show that women's educational attainment has a significant positive impact on happiness. In contrast, women's educational attainment indirectly contributes to happiness by suppressing the number of children, indicating that women's childcare environment and children's education conditions still need to be improved. In addition, most women's education is still at the

compulsory level, women's health varies widely, personal income is not normally distributed, and there is a wide gap between rich and poor. Therefore, this paper makes the following recommendations.

Strengthen investment in vocational education and training for women and promote the concept of lifelong learning. We are building a socialized maternity cost protection system and improving the childcare service system [9]. Create a relatively relaxed working environment to relieve women's work pressure and enhance their sense of well-being.

# References

1. Du Fenglian, Su Jingchun, Yang Xinsheng. Domestic division of labor and happiness [J]. Labor Economics Research, 2020, 8(06): 64–86.
2. Wang Dan. Analysis of the factors influencing the happiness of female groups in China—Based on CGSS201 [J]. Journal of Chifeng College (Chinese version of philosophy and social science), 2017(6): 48–51.
3. Xia Guoxiang, Huang Rongjie. Research on the relationship between women's education, number of children and family income [J]. Journal of Hainan Normal University (Social Science Edition), 2021, 34(02): 104–111.
4. Wei Qiang, Su Hanyun, Lv Jing, Yao Jian, Jin Chongyin. A study on the effects of family size, social support and health status on the subjective well-being of rural elderly women [J]. Northwest Population, 2020, 41(05): 106–115.
5. Baron RM, Kenny DA, The moderator-mediator variable distinction in social psychological research: conceptual, strategic and statistical considerations, Journal of personality and social psychology, vol. 51, no. 6, 1986.
6. Fan Yunxia. Educational capital: definition, model and operational analysis [J]. Journal of Education, 2018, 14(1): 51–57.
7. Zhang Lin. Research on the "punitive" effect of childbearing on women's labor market performance [D]. Capital University of Economics and Business, 2019.
8. Michaela Kreyenfeld, Uncertainties in Female Employment Careers and the Post ponement of Parenthood in Germany. European Sociological Review, 2012(03).
9. Zhang Yan, Lv Guoguang, Feng Yiheng. An empirical study on the effect of education on married women's happiness–an analysis based on CGSS data [J]. Journal of Jiangxi Science and Technology Normal University, 2021(02): 107–117.