



To What Extent Are Males Innately Stronger Than Females: The Influence of Educational Attainment

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Abstract. Different generations of educated individuals, including those with higher education and lower education backgrounds, hold diverse views on whether "males are inherently stronger than females." This article statistically analyzes the perspectives of various urban populations on this issue based on different generations and levels of education. The results demonstrate that with the continuous development of education, society increasingly values and recognizes the status of women, and higher education has significantly improved gender equality in Chinese society.

Keywords: Educated individuals, statistical analysis.

1 Introduction

According to a survey report in 2015, approximately 28.6% of the Chinese population from the 1950s to the 1990s had received higher education (including associate degrees, undergraduate degrees, and graduate degrees), while the remaining 71.4% had only attained education levels below undergraduate degrees [2]. As society continues to develop, more and more women have become aware of the importance of independence and their rise to independence has gradually become a significant trend in Western societies. The primary goal is to address discrimination, exploitation, and oppression against women in various social spheres, ultimately achieving gender equality. Since the May Fourth Movement, social development has also awakened the consciousness of some Chinese women [3]. Achieving gender equality is of great significance in constructing a harmonious society, as gender equality policies can stimulate women's potential, foster harmonious relationships between the sexes, and prevent conflicts arising from the unequal distribution of resources due to gender, promoting social fairness and justice [4]. However, gender inequality continues to persist in various aspects of Chinese society, especially in the domains of ideological beliefs, gender culture, marriage, and family [5]. To further explore the reasons for this gender inequality, this study took the field of education in urban areas as a starting point to investigate the association between educational levels and ideological beliefs. It aims to open up another direction for the further development of the feminist movement. The

belief that "males are inherently stronger than females" is an expression of male superiority and female inferiority in traditional Chinese views, which carries strong subjectivity. In the CGSS 2015 household questionnaire survey, 5,184 participants from urban areas from the 1950s to the 1990s expressed varying degrees of agreement with this statement. This article statistically analyzed the participants' ratings to obtain relevant data.

Currently, most of the literature on gender studies in China explored differences in education between genders in rural and urban areas and the existing gender disparities in Chinese society through statistical and literature analysis. It has been found that the lower the educational level, the more severe the gender inequality in educational opportunities [5]. Additionally, in the context of Chinese society, women continue to face limited access to resources compared to men in terms of education and employment [8]. However, existing articles still lack a direct exploration of the link between educational levels and personal ideological consciousness, as well as specific solutions to the uneven distribution of resources between men and women. This article investigated the impact of educational levels on the belief in whether males are inherently stronger than females, established the association between educational levels and the degree of ideological emancipation, and proposed certain solutions to fill the gaps in the current literature. In the analysis section of the paper, "gender" is referring to the biological sex that only includes males, females or intersex [6]. However, the "gender" in the questionnaire is referring to both biological sex and social gender. Social gender is the socially constructed roles and behaviors [6].

2 Data Collection

2.1 Methodology

This paper uses the secondary research method to collect data. The secondary research method involves collecting and synthesizing published data and literature from others primary research sources [1]. Quantitative methods examine the results by exploring numerical patterns and analyzing actual data [7]. This method is applied in this paper to analyze the attitude of the participants.

The sample data in this article comes from the 2015 China General Social Survey (CGSS). The survey conducted annual social research on urban and rural families in 100 counties/districts, including Beijing, Shanghai, Tianjin, Guangzhou, and Shenzhen, which served as primary sampling units, with a total of 480 villages/neighborhood committees and 12,000 households surveyed nationwide. The purpose of the CGSS was to systematically monitor social structure, quality of life, and their interactions and changes through annual surveys of urban and rural families. The survey content includes various aspects of families, including family education and gender awareness, providing strong data support for this research. In line with the research objective, this article selected survey participants from three generations in urban areas (born in the 1950s-1960s, 1970s-1980s, and the 1990s) as the analytical subjects, removing questionnaires with incomplete data to finally form an effective sample of 5,182 data points.

In the CGSS questionnaire, respondents' education levels were asked in the form of "the highest education level of yourself/father/mother," with options including "no education," "private tutoring," "primary school," "junior high school," "vocational high school," "ordinary high school," "technical secondary school," "specialized technical school," "associate degree" (adult higher education), "associate degree" (regular higher education), "undergraduate degree" (adult higher education), "undergraduate degree" (regular higher education), "graduate degree and above," and "other." For the purpose of empirical research, this article categorized the above education levels into four levels: preschool education (1) = no education, private tutoring; primary education (2) = primary school; secondary education (3) = junior high school, vocational high school, ordinary high school, technical secondary school; higher education (4) = associate degree, undergraduate degree, graduate degree, and above. The respondents' answers to the belief that "males are inherently stronger than females" were divided into five levels: (1) "completely disagree," (2) "relatively disagree," (3) "neither agree nor disagree," (4) "relatively agree," and (5) "completely agree."

3 Data Analysis

3.1 Descriptive Analysis of Variables

A descriptive analysis of the sample data was conducted, and the results are presented in Tables 1 and 2.

Table 1. Descriptive Summary of Variables (Quantitative Statistics)

Variable	Options	Sample size	Marginal percentage
Attitude	(1) disagree	582	0.112
	(2) relatively disagree	1916	0.37
	(3) indifferent	717	0.138
	(4) relatively agree	1651	0.319
	(5) agree	316	0.061
Education attainment	preschool education (1)	245	0.047
	primary education (2)	651	0.126
	secondary education (3)	2803	0.541
	higher education (4)	1483	0.286
Generations	50-60	2361	0.456
	70-80	2193	0.423
	90	628	0.121
Total		5182	1

Table 2. Descriptive Statistics of Variables

Target audience		Mode	Median	Average	Standard deviation
Generation 50-60	Attitude	4	3	2.98	1.73
	Educational attainment	3	3	2.77	0.78
Generation 70-80	Attitude	3	3	2.74	0.02
	Educational attainment	2	2	3.24	0.01
Generation 90	Attitude	2	2	2.57	0.04
	Educational attainment	4	4	3.54	0.02

Based on Table 1, it can be observed that the data sample in this study was mainly concentrated in the 50-60 generation and the 70-80 generation, with sample sizes of 2361 and 2193, respectively. Regarding educational attainment, the majority of the sample has attained secondary and higher education, with a sample size of 2803 for secondary education. Therefore, the results of this study can be inferred to represent the perspectives of individuals with medium to high educational backgrounds on male and female abilities. In terms of attitudes, the sample sizes for "relatively disagree" and "relatively agree" were the highest, with 1916 and 1651 responses, respectively, while the number of responses for the two extreme cases was relatively low.

Table 2 illustrated that the mode of attitudes decreased gradually from "relatively agree" to "relatively disagree" across generations, indicating shifts in perspectives on the belief that males are innately stronger than females across different generations. It is also noteworthy that the mean educational attainment showed an increasing trend across generations, reflecting the continuous improvement and enhancement of educational levels in our country.

3.2 Variable Correlation Analysis

A variable correlation analysis was conducted on educational background and attitudes, as presented in Table 3. It revealed a Pearson correlation coefficient of -0.198, which was significantly correlated at the 0.1 level (two-tailed). Additionally, the significance value of 0.000 was less than 0.05, indicating that the conclusion of the significance test has an error rate lower than 5%.

Table 3. Correlation analysis between educational background and participants' attitude

-	Project	Attitude
Educational attainment	Pearson correlation	-0.198**
	Significance (bilaterally)	0.000
	Sum of squares and cross products	-922.4
	Covariance	-0.178
	N	5182
**Significantly correlated at the .01 level (bilaterally)		

Individuals with relatively higher educational backgrounds have broader social perspectives and more objective and comprehensive views of things. On the other hand, individuals with lower educational attainment may still experience gender discrimination and tend to endorse the traditional notion that men create more social value, influenced by the historical practice of men engaging in agriculture and women in weaving. Due to societal constraints on their ideologies and consciousness, women in the past had limited avenues to realize their own value, with domestic responsibilities and childcare being their main focus in life. However, after the founding of the People's Republic of China, with economic development and social progress, an increasing number of women, like men, have received education and entered the labor market, challenging the traditional gender roles of men as breadwinners and women as homemakers. As a result, the strength and contribution of women have been continuously affirmed and recognized.

3.3 Model Analysis and Results Presentation

Using attitude values as the dependent variable and educational attainment and generations as independent variables, an ordered logistic regression model was applied for multivariate statistical analysis, as shown in Table 4. Regarding educational attainment, analyzing higher education (4), for every unit increase in educational attainment, the attitude response value decreased by 0.470, indicating a greater inclination towards disagreeing with the belief that males are innately stronger than females. In contrast, for every unit increase in preschool education (1) and primary education (2), the attitude response values increased by 0.505 and 0.509, respectively, indicating a greater inclination towards agreeing with the belief. Regarding generations, analyzing the 50-60 generation, for every unit increase in generation, the attitude response value increased by 0.334, indicating a greater inclination towards agreeing with the belief, while the inclination weakened for the 70-80 generation. As the sample size for the 90s generation was relatively smaller compared to the other two generations, its contribution to the analysis results was not significant. The attitude variation of individuals with secondary education was not clearly evident, which also explained their lack of significant contribution to the analysis.

Table 4. Model parameter estimation

		Estimated value	Standard error	Wald	df	Sig-nifi-cance	95% confidence interval	
							Lower limit	Upper limit
Thresh-old	[agree-ment=(1)disagree]	-1.965	0.088	497.341	1	0.000	-2.138	-1.793
	[agreement=(2)relatively disagree]	0.084	0.082	1.067	1	0.302	-0.076	0.244
	[agreement=(3)indifferent]	0.668	0.082	65.975	1	0.000	0.507	0.829
	[agreement=(4)relatively agree]	2.958	0.097	924.588	1	0.000	2.768	3.149
Place-ment	[age=50-60 generations]	0.334	0.087	14.747	1	0.000	0.164	0.504
	[age=70-80 generations]	0.126	0.084	2.259	1	0.133	-0.038	0.290
	[age=90 generation]	0 ^a	.	.	0	.	.	.
	[edu=preschool Education(1)]	0.505	0.123	16.747	1	0.000	0.263	0.747
	[edu=Primary Education(2)]	0.509	0.080	40.416	1	0.000	0.352	0.667
	[edu=Secondary Education(3)]	0 ^a	.	.	0	.	.	.
	[edu=Higher education(4)]	-0.470	0.062	58.409	1	0.000	-0.591	-0.350

*Link function: logit

- a. The parameter is set to zero as it is redundant.

4 Conclusion

Individuals from different generations hold diverse views on whether males are innately stronger than females. This study utilized data from the 2015 China General Social Survey (CGSS) and selected participants from three generations in urban areas (born in the 1950s-1960s, 1970s-1980s, and the 1990s) as the analytical subjects. The study conducted a correlation analysis of attitudes towards the belief across different generations and educational levels. The findings demonstrate that with the continuous development of education, the stereotypes on female and males are alleviated. Chinese society increasingly values and recognizes the status of women, and higher education has improved people's awareness of the concept of gender equality.

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