



# The gender differences of marital satisfaction's influencing factors in China

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**Abstract.** The discussion on gender differences can be traced back to the early stages of human society, where different division of labor was formed between men and women based on physiological gender. The traditional gender role concept positions men as the role of “supporting the family” and forms a labor division model of “men leading the outside and women leading the inside”. In modern society, the improvement of women’s labor participation rate and the universal generalization of “double salary” families have prompted obvious changes in the traditional concept of gender roles and the formation of a new pattern of gender division in families. However, traditional gender division of labor still exists within the family. Therefore, the gender difference in marital satisfaction in China is an important scientific issue. This article is based on role theory, gender role theory, gender difference theory, social gender theory, and the empathy altruism hypothesis. Using data from 2017 China General Social Survey (CGSS), relevant analysis, exploratory factor analysis, confirmatory factor analysis, structural equation modeling, and comparative analysis are used to study the gender difference in marital satisfaction in China, Structural equation models were constructed for both males and females. The research results indicate that both male and female marital satisfaction can be significantly improved by spouses doing household chores, and the increase in female marital satisfaction is greater when spouses do household chores. Family decision-making can significantly improve male marital satisfaction, while female participation in family decision-making can reduce male marital satisfaction. However, male participation in family decision-making has no significant impact on female marital satisfaction. Both physical and mental health can significantly affect the marital satisfaction of both men and women, but the impact of men’s physical and mental health on women’s marital satisfaction is more significant. This study has important practical significance in improving marital satisfaction in Chinese families and promoting the construction of harmonious families.

**Keywords:** Spouse doing household chores, family decision-making, physical and mental health, marital satisfaction, gender differences, China

## 1 Introduction

The discussion on gender roles can be traced back to the early stages of human society. Based on physiological gender, men and women formed different division of labor, with men responsible for hunting and fighting, and women responsible for collecting and giving birth, thus forming the process of gender socialization <sup>[1]</sup>. In traditional family role norms, the roles and responsibilities of husband and wife are clear <sup>[2]</sup>. The traditional gender role concept positions men as the role of “supporting the family” and forms a labor division model of “men leading the outside and women leading the inside”, with more economic expectations for men and mainly domestic labor expectations for women <sup>[3]</sup>. In the year of 1981, the People’s Republic of China (PRC) promulgated the *marriage law*, breaking the situation that women in China have no autonomy in marriage <sup>[4]</sup>, gender equality is enshrined in the constitution; Under the call of “women can hold up half of the sky”, women are no longer limited to reproductive labor within the family, but also enter the public sphere to engage in productive labor <sup>[5]</sup>. With the comprehensive reform of the economic system after the reform and opening up, women have gradually become indispensable boosters of national development, and women’s issues have gradually become the focus of attention. The factors that are not conducive to women in traditional culture conflict with the goal of pursuing equality in society, causing social development to swing left and right in the reconstruction of gender roles <sup>[4]</sup>. This cultural model of gender division of labor will not change synchronously due to changes in women’s economic dependence, and there may be a lag <sup>[6]</sup>.

Women’s ownership of marriage autonomy reflects that women’s will is more accepted, which reflects the change of women in China’s new mental outlook from no sense of marriage autonomy to actively fighting for freedom and rights <sup>[4]</sup>. In modern society, the improvement of women’s labor participation rate and the universal generalization of “double salary” families have prompted obvious changes in the traditional concept of gender roles <sup>[7]</sup>. Modern couples often engage in a “partner style marriage” of free romantic union, which tends to strengthen the intimate, equal, and democratic relationship between couples. The sharing of family finances by both spouses is a financial allocation based on trust for a family, and it is a way of marital coordination. The formation of a new pattern of gender division of labor in families, such as the widespread occurrence of the “co ownership” model between spouses, the increasing equality of power within the family between spouses, and the emergence of the “co ownership” model where men take the initiative to take on household chores. At the same time, the traditional family gender division still exists. The husband agrees with the traditional family gender division model, and the wife acquiesces to the traditional family gender division model <sup>[2]</sup>.

For women, although most wives have an independent economic income and are not limited to traditional family roles, they are still subject to the configuration of implicit gender systems. When working, both men and women are the same. After work, most women consciously take on household chores and take care of their family’s daily life. The husband takes this division of labor for granted, while the wife, although independently bearing this pressure, subjectively has to accept it <sup>[2]</sup>. As more and more

women are liberated from their families and enter the labor market, participating in economic activities, their economic income and social status are further improved. However, even if women participate in work, women in the family still take on more responsibilities such as taking care of children and the elderly, and completing most household activities, making them “dual workers” [8]. According to the *Global Gender Gap Report in 2021*, China shows a high level in terms of higher education penetration and labor participation rate, but the imbalance between motherhood and paternity within the family indicates that the traditional gender division of labor within the family still exists [9], the traditional roles and functions of women in China have always been placed in a subordinate position. Women are the undertakers of housework and the backing for men to go out to work. Men occupy a dominant position in the family [10].

Recent studies have shown that the gender role concepts of Chinese people generally tend to be modern and equal, but there are significant differences in social division of labor and cultural regulations, showing a trend of returning to tradition, with a resurgence of the phenomenon of men being outside and women being inside. The third national survey on the status of women pointed out that women’s gender perspectives are generally more modern, with younger people having more modern gender perspectives. Men’s gender concepts are more traditional and exhibit high consistency and stability among different age groups [11]. In terms of family decision-making, women’s decision-making power in family affairs has been increasing year by year, such as decision-making in production and childbirth [4]. Therefore, it is necessary to study the marital satisfaction of Chinese residents from the perspective of gender differences, which requires further empirical research and scientific demonstration. In the current situation where people are increasingly concerned about marital satisfaction, the relationship and gender differences among spouse doing household chores (SDH), family decision-making (FDM), physical and mental health (PMH), and marital satisfaction (MS) have become core scientific issues that need to be further deepened.

## 2 Theoretical framework

### 2.1 Role theory

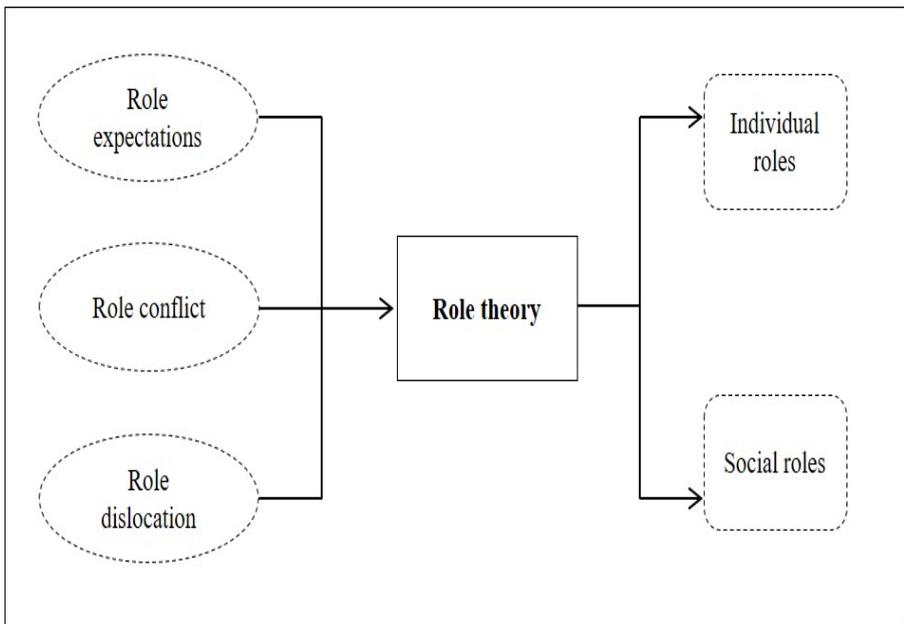
The role theory can be divided into individual role and social role. From an individual perspective, a role is the sum of an individual’s identity, status, moral cultivation, and personal qualities. From a social perspective, roles are an integral part of social structure and the expectations of individuals from social norms and relationships [2].

The role theory can be explained by role expectation, role conflict and role dislocation. Role expectation refers to the behavioral requirements put forward by others in a specific social and cultural context that conform to their role identity [2]. Gender role expectations are behavioral demands or expectations made by others and oneself towards a certain gender identity. Family role expectations refer to the behavioral requirements or expectations put forward by other family members towards a certain family role player in the family [2].

Role conflict refers to the conflicts, opposites and conflicts between or within roles in the process of role playing, which hinder the smooth progress of role playing [2]. Role

conflict can be divided into two types: intra role conflict and inter role conflict. Role conflict refers to the conflict between different roles played by the same role-player. It may be because people have different expectations or unclear roles for the same role, resulting in different requirements for the role's norms and causing role-players to be in a dilemma when taking action. It is also possible that conflicts arise due to the gap between role-playing players' understanding of the role and their behavior. The wife's role conflict includes both the conflict caused by the husband's expectations of the wife's two different roles (objective conflict) and the conflict caused by the wife's own understanding of the wife's different roles (subjective conflict). The husband's role conflict is the role conflict between the husband's understanding of the "husband's role" and his actual behavior <sup>[2]</sup>.

Role misalignment refers to a situation where one's role performance does not align with the behavioral requirements or expectations of others towards this role. The husband's role behavior does not meet the wife's expectations for the husband's role. Based on the expectations of the wife, the husband shows a mismatch in the role of "husband". The role dislocation may cause the role actor to reflect on his own role behavior, cause inner contradictions and conflicts, and form role conflict <sup>[2]</sup> (Figure 1).



**Fig. 1.** The framework of role theory

## 2.2 Gender role theory

The roles of "man" and "woman" can be referred to as gender roles, and individuals of different genders may have different thoughts, traits, and behavioral patterns. The characteristics of individual gender roles are closely related to social culture, and in the

process of social life, individuals gradually learn to act according to their own gender role norms <sup>[12]</sup>. Gender roles refer to the sexual characteristics and behavior patterns learned by individuals of different genders in the social culture that conform to social norms and cognition <sup>[13]</sup>. Gender roles are the behavioral patterns of men and women constructed by social culture <sup>[14]</sup>.

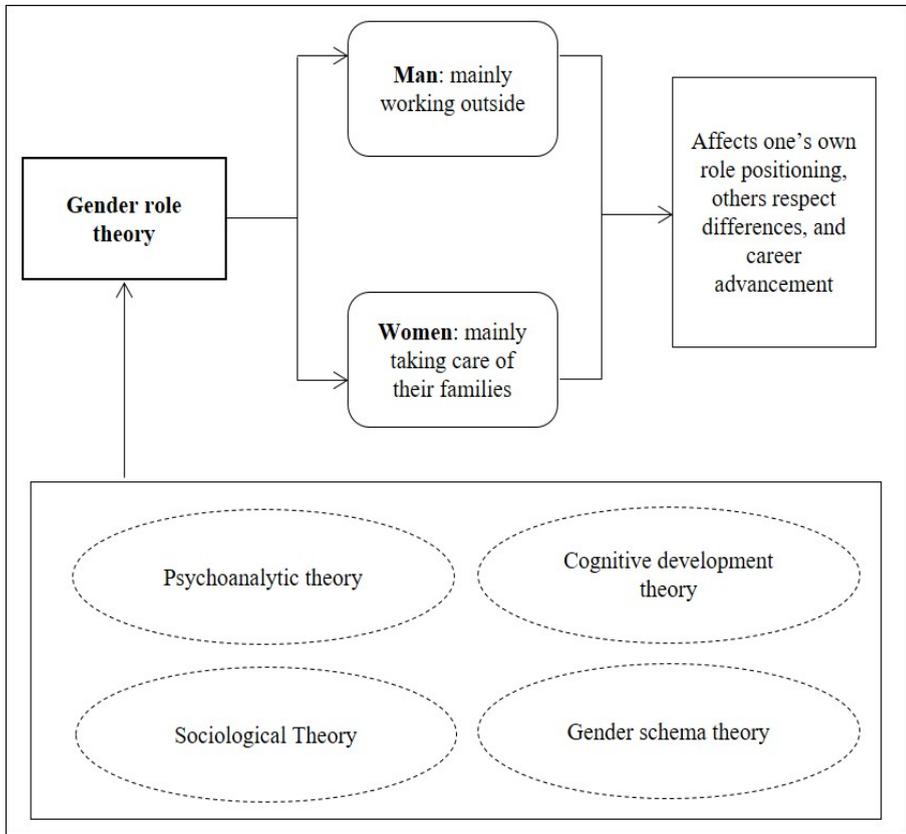
The gender role theory suggests that society has different role expectations for men and women. Men are expected to pursue material success, while women are expected to play the role of caregivers. This gender oriented role expectation may affect men's positioning and cognition of their roles, and this gender oriented role expectation may also affect women's positioning and cognition of their roles, thus affecting the direction, intensity and possible results of work family conflict they feel <sup>[7]</sup>. The ability of women to earn income and participate in income generating activities is strongly influenced by gender standards, lack of available resources, and time pressures from rising gender norms and responsibilities. For example, a study of female vegetable traders in Vietnam cities found that women have little space for social respect when working, such as street trade, but still need to negotiate with their husbands to enter informal employment space <sup>[15]</sup>.

The theoretical basis of gender roles mainly includes psychoanalysis theory, cognitive development theory, Social cognitive theory and gender schema theory. According to psychoanalytic theory, the formation of gender roles is closely related to the Oedipus complex experienced by individuals in childhood. Boys form their own gender roles by identifying with the masculinization characteristics of their fathers, while girls identify with their mothers and imitate their mothers' feminized behaviors to form their own gender roles <sup>[12]</sup>.

The cognitive development theory emphasizes the interaction between psychology and society. It believes that the development of gender roles depends on the development of cognition, and individuals will actively participate in their own socialization process and look for examples of the same sex. A series of developmental time, such as basic gender identity, gender stability and gender constancy, enable individuals to acquire gender roles, and gender identity determines the concept of gender roles <sup>[12]</sup>.

The social cognitive theory believes that social factors have a great impact on the formation of gender roles, which is formed by different social experiences and social experiences of individuals, rather than the inherent characteristics of individuals <sup>[12]</sup>.

The gender schema theory believes that schemas are the network systems that already exist in the human brain that cause experience. When external information stimulates an individual, it activates the schema system in the individual's brain and categorizes information according to certain standards. When individuals engage in social intuition, schemas play a guiding and combining role in the information they have just received, including knowledge and interests of the activity, personality, and social attributes. And once an individual's gender schema is formed, they are expected to act in accordance with traditional gender expectations <sup>[12]</sup> (Figure 2).



**Fig. 2.** The framework of gender role theory

### 2.3 Gender difference theory

Gender is not only related to the natural attributes of an individual's identity, but should also be regarded as a social relationship. The importance of physiological differences in terms of sociality lies in the social relationships constructed above them. So, gender is a field of social inequality [16]. In addition to physiological differences, men and women also have gender differences constructed through psychological, cultural, and social means [17]. The family is an important place for gender socialization. In the process of interacting with family members, the gender role expectations of family members also have a strong impact on their own role shaping. The expectations of their own gender roles have an impact on the role fulfillment of other family members [2]. Obviously, women are in a weaker position among these stereotypes, which leads to significant differences between women and men in terms of job choices, family status, job compensation, and even other power. But thanks to the development of society, economy, technology, and digital media, gender norms have also begun to be reshaped, and the traditional roles played by men and women in the world are also changing [18].

Men and women not only have differences in anatomy, but also in behavior and expression. Some behavioral differences are determined by biological factors. For example, the male sex hormone testosterone causes men to be more aggressive than women. However, more non-anatomical differences are determined by the gender roles learned by each individual. In other words, people are born male or female, but gradually learn how to become male or female in their environment. The so-called men are strong, strong, and rational, while women are gentle, fragile, and irrational, which is a long-standing and deeply rooted gender label <sup>[1]</sup>. For example, stereotypes about gender roles suggest that women should be selfless and caring for others, while men should be confident and independent. Therefore, women play more roles in self-sacrifice and altruistic behavior <sup>[19]</sup>.

The stereotypes and biases caused by gender differences between men and women affect the formation, function, and outcome of marriage. The stereotypical impression of male and female gender brought about by gender norms <sup>[18]</sup>. Men support women in challenging normative gender roles. When the family economy is under pressure, increasing their economic participation is because it can increase family income, not because they generally support women in changing their roles in society <sup>[15]</sup>. Gender bias can easily arise in spouses' household chores and family decision-making, leading to gender stereotypes that men should not do household chores and should participate more in family decision-making. Gender bias and standards are also attributed to women's professional assessment and progress in their careers. Although radical gender standards show a high degree of cultural adherence, gender standards can also be reshaped, such as female leaders, mothers' labor participation, women's military service, daughters, sisters, improving women's aspirations or men's aspirations, and appearing in television programs to reflect the deviation from traditional gender standards, And discuss gender equality among teenagers in school <sup>[20]</sup>.

The dual path model of gender differences is used to predict the relationship between gender types of self-identity and support for gender stereotypes. A person's identified gender has important and personal significance for social categories, but the attitude-based path (other to self) proposes that an individual's personality support for cultural gender stereotypes promotes self-determination. However, the individual's path (self to other), self-perception promotes the establishment of gender stereotypes. But this model cannot explain the relationship between self-perception and others' perception <sup>[21]</sup>.

Under the guidance of feminist theory, a vigorous women's liberation movement has emerged worldwide, and people have begun to reflect on the issue of gender equality and whether there should be differences between the sexes. In the early stages of the women's movement, emphasis was placed on "equality", which means gender equality. Women should strive for equal employment and political rights like men. Since the 1970s, the women's movement has shifted to emphasizing gender differences, striving for women's liberation, and realizing women's special values, rather than just gender equality <sup>[22]</sup> (Figure 3).

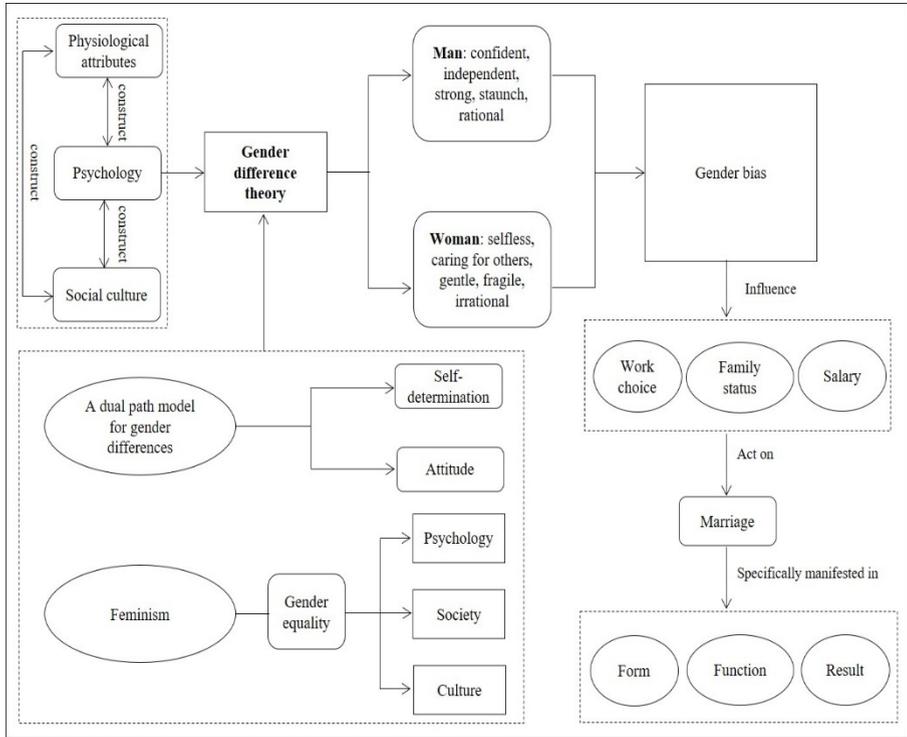


Fig. 3. The framework of gender difference theory

## 2.4 Social gender theory

The main point of the social gender theory is that the social system endows everyone with their own gender, which originates from the social construction, and regulates people's behavior, which determines people's role and behavior characteristics. Although both genders acquire their physiological gender through birth, their behavior, beliefs, and social status are determined by their social gender. In fact, the identification of biological attributes provides the basis, and gender shapes individuals into different gender roles through various social media. On the one hand, gender portrays the differences in social behavior between men and women. Social gender is based on physiological gender, but it is different from physiological gender. It is the sexual characteristics and differences that people show in social activities. On the other hand, in real life, male roles shaped by gender often have higher value and receive more expectations than female roles. The arrangement of gender order in society results in extremely unequal positions for both genders in terms of power, prestige, wealth, etc. Especially in Chinese society, the unequal status of male partners, female partners, male leaders and female subordinates, and male strengths and weaknesses are common in terms of family, workplace, and access to educational resources <sup>[2]</sup> (Figure 4).

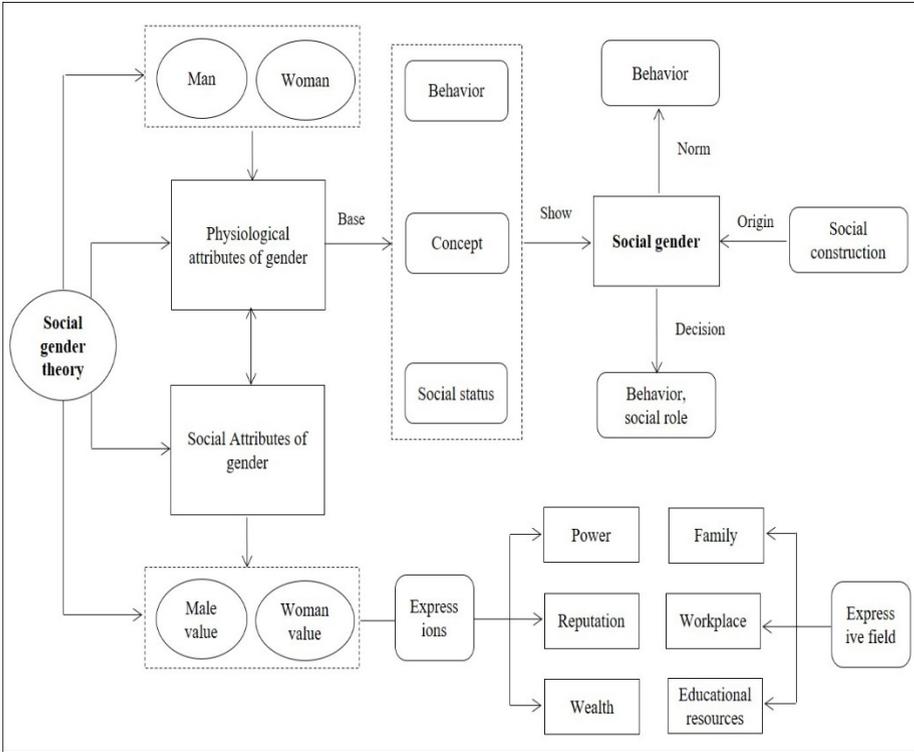


Fig. 4. The framework of social gender theory

### 2.5 Empathy altruistic hypothesis

The “empathy altruism hypothesis” refers to the individual’s perception of the emotional needs of the assisted person, which can trigger altruistic motives in order to alleviate such needs. If an individual experiences empathy, they will help others through purely voluntary altruistic behavior, even if the cost outweighs the reward. If empathy does not occur, they will help others based on their own interests. According to this hypothesis, the stronger the emotion of empathy, the greater the motivation for altruism [23]. Altruistic behavior is a form of pro social behavior that involves acting with concern for the interests of others and without expecting any form of return. For individuals, altruistic behavior can not only enhance their subjective well-being, but also make helpers feel warmer about their surroundings after helping others. Cognitive empathy, also known as “empathy” refers to the ability to perceive and understand the feelings of others, and is one of the fundamental components of empathy. The empathy altruism hypothesis suggests that altruistic behavior is a key factor based on emotions towards others, which is called “empathy care”. If one person empathizes with another person, aiding behavior may occur regardless of whether the helper can gain anything from it [19] (Figure 5).

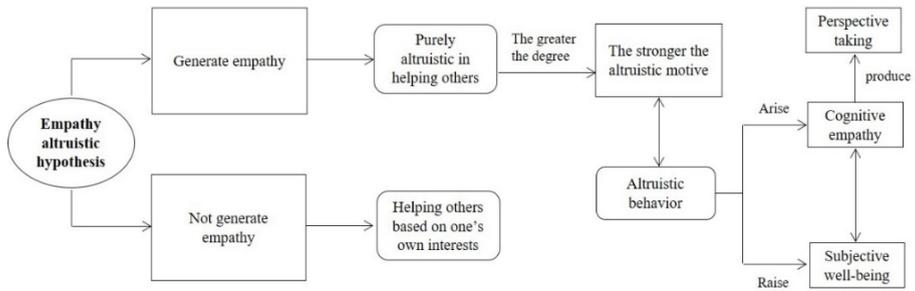


Fig. 5. The framework of empathy altruistic hypothesis

### 3 Methods

#### 3.1 Data Sources

The data in this article come from the 2017 China General Social Survey (CGSS). The CGSS is the comprehensive and continuous academic survey undertaken in China [24]. The project was hosted by the China Survey and Data Center at Renmin University of China [25]. This paper selected 2555 samples from the survey results as our original data, covering different cohabitation and marriage experiences. The samples were divided into six types of cohabitation and marriage experience (Table 1).

Table 1. Data indicators

Indicators	Abbreviation	Definition	Mean	Std.
The degree of current physical health	CH	very unhealthy =1, less healthy =2, Moderate health =3, relatively healthy =4, very healthy =5	3.497	1.052
The degree of felt depressed in the past four weeks	DP	always=1, often=2, sometimes=3, rare=4, never=5	3.833	0.975
The frequency of spouse makes dinner	SD	almost everyday=1, several times a week=2, about once a week=3, about once a month=4, several times a year=5, about once a year=6, never did=7	2.861	2.145
The frequency of spouse laundry	SL	almost everyday=1, several times a week=2, about once a week=3, about once a month=4, several times a year=5, about once a year =6, never did=7	3.058	2.188

The frequency of spouse cleans the house	SC	almost everyday=1, several times a week=2, about once a week=3, about once a month=4, several times a year=5, about once a year=6, never did=7	2.895	2.064
the distribution of child care responsibilities between the partners	CR	always me=1, often me=2, I and my spouse are half=3, often my spouse=4, always my spouse=5, other family members=6	2.913	0.897
The distribution of household expenditure's consumption	HE	always me=1, often me=2, I and my spouse are half =3, often my spouse=4, always my spouse=5, other family members=6	2.927	0.899
Martial satisfaction	MS	Very satisfied=1, satisfy=2, it doesn't matter if you are satisfied or not=3, dissatisfy=4, Very dissatisfy=5	1.955	0.644

### 3.2 Exploratory factor analysis

We used principle component analysis to perform an exploratory factor analysis (EFA) on CH, DP, SD, SL, SC, CR, and HE and identified principle components with an eigenvalue greater than 1.0 as influencing factors [26]. This resulted in seven influencing factors, which explained 76.790% of the total variance in MS (cutoff value 60%) [26].

We repeated our EFA for a different sample from the survey results (with the same sample size is 2555) to verify the factor structure identified in the initial EFA analysis, assuming all the factors to be independent [26].

### 3.3 Structural Equation Modeling

The structural equation model (SEM) was used to analyze relationships between the influencing factors and the dependent variable, such as MS [27].

$$X = \Lambda_X \xi + \sigma \tag{1}$$

$$Y = \Lambda_Y \eta + \varepsilon \tag{2}$$

$$\eta = B\eta + \Gamma\xi + \varsigma \tag{3}$$

Where X and Y refer to the vector quality of exogenous and endogenous indicators, respectively,  $\Lambda_X$  and  $\Lambda_Y$  are factor-loading matrix, B represents the relationship between endogenous latent variables on exogenous latent variables, and the  $\sigma$ ,  $\varepsilon$ ,  $\varsigma$  refer to the residual item.

## 4 Results

### 4.1 Data test

The correlations between marital satisfaction and the influencing factors are shown in Table 2. The common factor variance after exploratory factor analysis is shown in Table 3. So all the AVE scores of the six factors exceeded the cutoff value of 0.5, demonstrating sufficient convergent validity [26]. The specific dimension division results are shown in Table 4, we tested the validity and reliability of the identified influencing factors and the results are shown in Table 5, commonalities were examined and factors with values higher than the cutoff point of 0.5 were discarded [26], which shows substantial reliability and internal consistency among the data for each factor. SEM results of the structural equation test show that the SEM captures MS well, and the specific results are shown in Table 6, which showed that the three models (the SEM of man, woman1 and woman2) fitting effect are also good [28,29]. I calculated other model fit indices and found that these also showed the model to be acceptable. So these metrics show that the indices calculated from the model are good. The absolute and relative fitting indices indicate that the internal structure of the SEM is sound, and the parsimonious fitting index indicates that the external structure of the model is also sound [30].

**Table 2.** Pearson correlation analysis

	SD	SL	SC	CR	HE	CH	DP	MS
SD	1							
SL	0.756**	1						
SC	0.753**	0.836**	1					
CR	-0.063**	-0.077**	-0.080**	1				
HE	-0.090**	-0.093**	-0.093**	0.429**	1			
CH	-0.040*	-0.049**	-0.050*	-0.029	-0.030	1		
DP	-0.037	-0.039	-0.042*	0.011	0.019	0.379**	1	
MS	0.107**	0.121**	0.142**	-0.051*	-0.050*	-0.153*	-0.180**	1

Notes: \*, \*\* indicate the factors are significant at 0.05, 0.01, respectively.

**Table 3.** Common factor variance (exploratory factor analysis)

	Initial	AVE
SD: The frequency of spouse makes dinner	1.000	0.815
SL: The frequency of spouse laundry	1.000	0.876
SC: The frequency of spouse cleans the house	1.000	0.873
CR: the distribution of child care responsibilities between the partners	1.000	0.715
HE: The distribution of household expenditure's consumption	1.000	0.713
CH: The degree of current physical health	1.000	0.690
DP: The degree of felt depressed in the past four weeks	1.000	0.693

**Table 4.** Composition matrix

		Components		
		1	2	3
SDH: spouse doing housework	SD	0.893		
	SL	0.927		
	SC	0.926		
FDM: family decision-making	CR		0.698	
	HE		0.690	
PMH: physical and mental health	CH			0.650
	DP			0.707

**Table 5.** Reliability and validity test

		Cronbach's Alpha	KMO (Kaiser-Meyer-Olkin)
All indicators (dependent and independent variables)		0.608	0.708
All independent variables		0.621	0.702
SDH(spouse doing housework)	SD, SL, SC	0.914	0.748
FDM(family decision-making)	CR, HE	0.601	0.500
PMH(physical and mental health)	CH, DP	0.549	0.500

**Table 6.** Goodness of fit and criteria

Model	CMIN	$\chi^2$	P	RMS EA	RMR	GFI	NFI	CFI	TLI	PNFI	PCFI
Man	8.887	0.592	0.883	0.000	0.011	0.998	0.997	1.000	1.004	0.534	0.536
Woman1	14.114	0.941	0.517	0.000	0.019	0.997	0.995	1.000	1.001	0.533	0.536
Woman2	7.481	1.069	0.381	0.007	0.020	0.998	0.997	1.000	1.000	0.465	0.467
Reference value	Smaller is better	<5	>0.05	<0.05	<0.05	>0.9	>0.9	>0.9	>0.9	>0.5	>0.5

Notes: CMIN is “Chi-square”,  $\chi^2$  is “CMIN/DF”, P is “Probability level”, RMSEA is “Root mean square error of approximation”, RMR is “Root mean square residual”, GFI is “Generalized multiple correlation coefficient”, NFI is “Normed fit index”, CFI is “Comparative fit index”, TLI is “Tacker-Lewis index”, PNFI is “Parsimony normed fit index”, PCFI is “Parsimony comparative fit index”. In addition, the model fit indexes about “CMIN,  $\chi^2$ , P, RMSEA, RMR and GFI” refer to the absolute fitting index, the model fit indexes about “NFI, CFI, TLI” refer to the relative fitting index, the model fit indexes about “PNFI, PCFI” refer to the parsimonious fitting index.

## 4.2 Path analysis

The regression weights and standardized regression weights for the default model are shown in Table 7. The factor loading coefficients were acceptable. The factor loading coefficients for each observed variable on the corresponding latent variables were statistically significant, most of the standardized factor loadings coefficients were under 0.6<sup>[31]</sup>.

In the structural equation model (SEM) of man, SDH (spouse doing housework) corresponding to the observed variables, such as SC (the frequency of spouse cleans the house), SL (the frequency of spouse laundry) and SD (the frequency of spouse makes dinner) of the regression weight coefficients are 0.874, 0.905, 0.777, respectively; FDM (family decision-making) corresponding to the observed variables, such as HE (the distribution of household expenditure's consumption) and CR (the distribution of child care responsibilities between the partners) of the regression weight coefficients 0.733 and 0.574, respectively; PMH (physical and mental health) corresponding to the observed variables, such as DP (the degree of felt depressed in the past four weeks) and CH (the degree of current physical health) of the regression weight coefficients 0.773 and 0.476, respectively.

In the structural equation model (SEM) of woman1, SDH corresponding to the observed variables, such as SC, SL, and SD of the regression weight coefficients are 0.890, 0.879 and 0.784, respectively; FDM corresponding to the observed variables, such as HE and CR of the regression weight coefficients are 0.662 and 0.645; PMH corresponding to the observed variables, such as DP and CH of the regression weight coefficients 0.598 and 0.644, respectively.

In the structural equation model (SEM) of woman2, SDH corresponding to the observed variables, such as SC, SL, and SD of the regression weight coefficients are 0.890, 0.879, and 0.784, respectively; PMH corresponding to the observed variables, such as DP and CH of the regression weight coefficients are 0.624 and 0.618, respectively.

**Table 7.** The standardized regression weights of different SEM models

Observed variable		Latent variable	Man	Woman1	Woman2
SC	<--	SDH	0.874	0.890	0.890
SL	<--	SDH	0.905	0.879	0.879
SD	<--	SDH	0.777	0.784	0.784
HE	<--	FDM	0.733	0.662	
CR	<--	FDM	0.574	0.645	
DP	<--	PMH	0.773	0.598	0.624
CH	<--	PMH	0.476	0.644	0.618

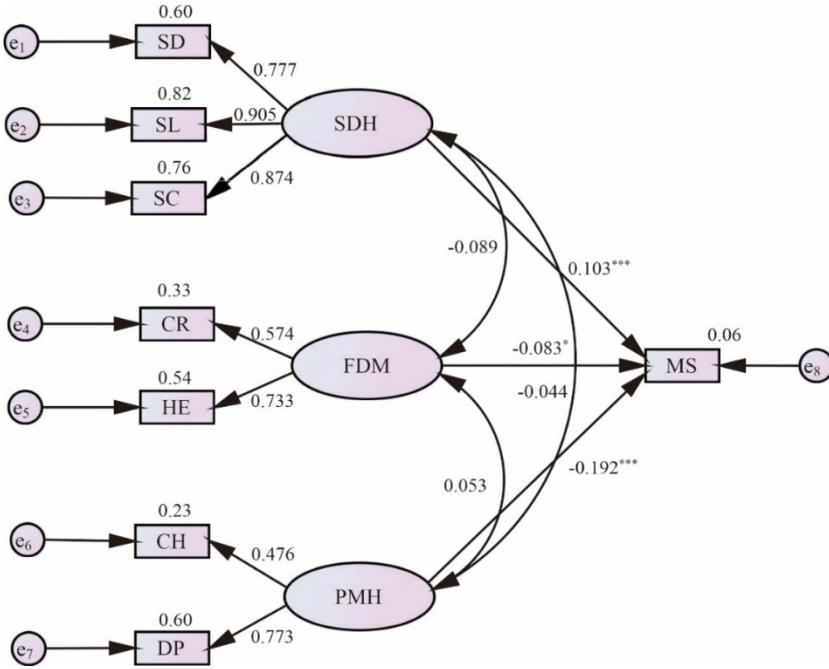


Fig. 6. The SEM of MS about the man sample

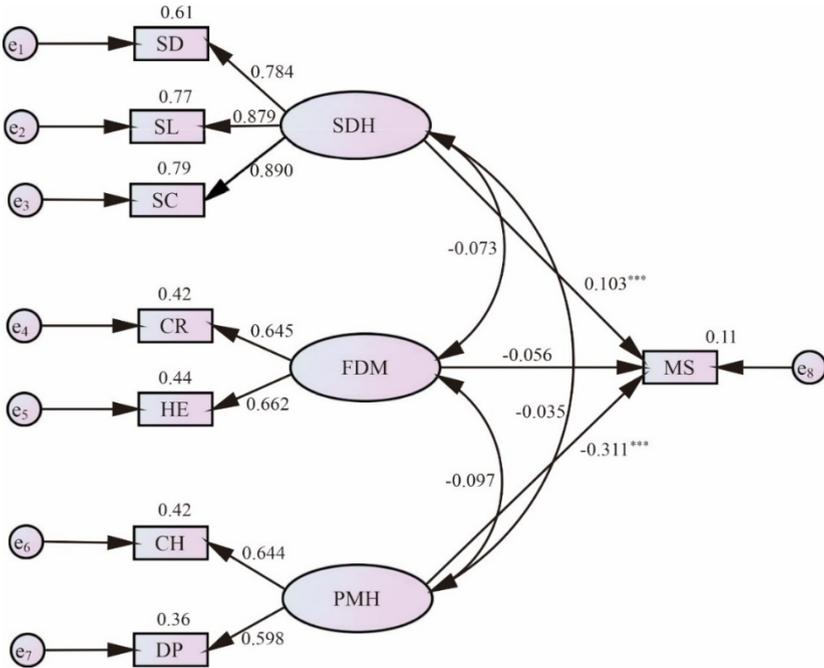


Fig. 7. The SEM of MS about the female sample

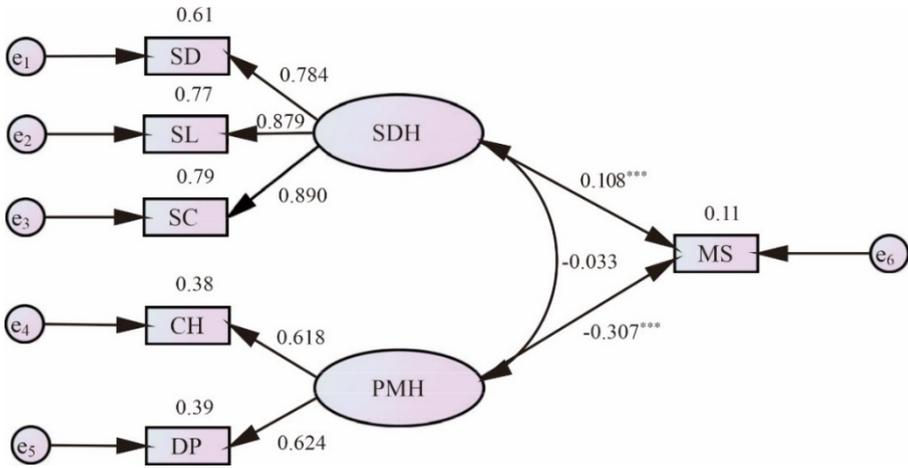


Fig. 8. The SEM of MS about the adjusted female sample

According to Figure 6-Figure 8, and table 8, in the SEM model of Man, the latent variable SDH (spouse doing housework) corresponding to the observed variable MS (marital satisfaction) of the standardized factor loading is 0.103, and which is significant at 0.001 level; the latent variable FDM (family decision-making) corresponding to the observed variable MS(martial satisfaction) of the standardized factor loading is -0.083, and which is significant at 0.1 level; the latent variable PMH (physical and mental health) corresponding to the observed variable MS (martial satisfaction) of the standardized factor loading is -0.192, and which is significant at 0.001 level.

In the SEM model of Woman1, the latent variable SDH (spouse doing housework) corresponding to the observed variable MS(martial satisfaction) of the standardized factor loading is also 0.103, and which is significant at 0.001 level; the latent variable FDM (family decision-making) corresponding to the observed variable MS(martial satisfaction) of the standardized factor loading is -0.056, this is not significant; the latent variable PMH (physical and mental health) corresponding to the observed variable MS (martial satisfaction) of the standardized factor loading is -0.311, and which is significant at 0.001 level.

In the SEM model of Woman2, the latent variable SDH (spouse doing housework) corresponding to the observed variable MS (martial satisfaction) of the standardized factor loading is 0.108, and which is significant at 0.001 level; the latent variable PMH (physical and mental health) corresponding to the observed variable MS (martial satisfaction) of the standardized factor loading is -0.307, and which is significant at 0.001 level.

Table 8. The path analysis

Model	Observed variable	Arrow direction	Latent variable	Standardized factor loading
Man	MS	<--	SDH	0.103***

	MS	<--	FDM	-0.083*
	MS	<--	PMH	-0.192***
Woman1	MS	<--	SDH	0.103***
	MS	<--	FDM	-0.056
	MS	<--	PMH	-0.311***
Woman2	MS	<--	SDH	0.108***
	MS	<--	PMH	-0.307***

Notes: \*\*\* means significant at 0.001 level; \* means significant at 0.1level.

## 5 Discussions

### 5.1 Gender differences in the impact of spouse doing housework on marital satisfaction

Spouses participating in daily household affairs such as cleaning the room, washing clothes, and cooking can reduce the workload of the husband’s household chores or wife’s household chores, and that saves a certain amount of their time about each other. For example, in the division of labor between men and women in primitive society, men generally hunted and fought, while women generally collected and gave birth. In traditional society, men usually work outside to support their families, so the task of taking care of their families usually falls to women. In modern society, both men and women enter the workplace and may engage in work to provide financial support for family development. However, in marital life, there can still be reasonable or unreasonable arrangements for household chores by men and women. Therefore, men and women show varying degrees of satisfaction in household activities. In empirical research, it can be found that both male and female marital satisfaction can be significantly improved by spouses doing household chores, and the increase in female marital satisfaction is greater when spouses do household chores.

On the one hand, the gender role theory suggests that men generally pursue material success, while women play the role of “caregivers”. Although modern women have significantly increased employment rates, they are still the main bearers of household activities [32]. Therefore, helping a husband share more household chores with his wife can significantly enhance a woman’s sense of marital happiness, and husbands have formed expectations for their wife’s behavior patterns, requiring her not only to obtain stable income from work, but also to take care of her family. Wives, as independent individuals, often struggle to fulfill this role expectation in real life [2], at the same time, there may be phenomena such as role conflicts and role misalignment. Therefore, the degree of improvement in husband’s marital satisfaction is not very high when a wife does household chores.

On the other hand, the “empathy altruism hypothesis” suggests that if an individual empathizes with the person being helped, they will help others through purely voluntary altruistic behavior, even if the cost outweighs the reward. If empathy does not occur, they will help others based on their own interests. Therefore, the stronger the emotions of a wife or husband towards each other’s empathy, the greater the motivation for

altruism<sup>[23]</sup>, this can easily lead to cognitive empathy<sup>[19]</sup>, this way, the husband or wife will be more proactive in helping each other share household chores and jointly improve marital satisfaction.

## **5.2 Gender differences in the impact of family decision-making on marital satisfaction**

The long-standing gender bias has led men to have advantages in job choices, family status, and job remuneration, which has led to greater discourse and decision-making power. Of course, the greater the ability, the greater the responsibility, and this also affects the formation, function, and outcome of marriage. Therefore, in a family, family decision-making generally requires following the opinions of men. According to empirical research results, it can also be shown that family decision-making can significantly improve male marital satisfaction, and female participation in family decision-making can reduce male marital satisfaction. However, male participation in family decision-making has no significant impact on female marital satisfaction.

On the one hand, especially for traditional families, male work is the main source of family income, and women's social role is to be a good wife and mother, with their main job being to take care of household chores and children. On the other hand, "tradition" is often regarded as the foundation for the distribution of power in the family. The 5000 year cultural tradition of the Chinese nation, especially the traditional concept of men farming and women weaving, still affects the consciousness and concepts of family members<sup>[33]</sup>. Due to the influence of two thousand years of patriarchal culture, especially the discourse on family ethics and morality in Confucian culture, such as the "wife obeys husband" principle, Chinese society has long limited women's main socio-economic activities to the narrow space of the family<sup>[34]</sup>.

In addition, the degree of gender segregation is often the most important factor in measuring whether men and women are equal. Gender segregation is essentially a form of male dominance and control over women, and is a manifestation of power relations<sup>[35]</sup>. Finally, social gender theory suggests that gender originates from social construction, and at the same time determines individual behavior and social roles. This further promotes the value of men in terms of power, reputation, and wealth to be greater than that of women in terms of power, reputation, and wealth. This imbalance between male and female values is always reflected in tangible and intangible spaces such as family, workplace, and educational resources.

## **5.3 Gender differences in the impact of physical and mental health on marital satisfaction**

Men and women not only have differences in anatomy, but also in behavior and expression. Some behavioral differences are determined by biological factors. According to the theory of gender differences, men and women form different stereotypes in society and families, such as having confident, independent, strong, resilient, and rational gender characteristics. However, women have gender characteristics of selflessness, caring for others, tenderness, vulnerability, irrationality,

self sacrifice, and altruism. Psychoanalytic theory suggests that boys form their own gender roles by identifying with their father's masculine characteristics, while girls identify with their mother and imitate her feminine behavior to form their own gender roles [12]. These are long-standing and deeply rooted gender labels [1]. These physiological and social cultural sexual characteristics also reflect the physical and mental health of both spouses in the family. Good physical and mental health can create a harmonious and peaceful family atmosphere, and then can promote the improvement of marriage quality. Therefore, the empirical results indicate that both physical and mental health can significantly affect the marital satisfaction of both men and women, but the impact of men's physical and mental health on women's marital satisfaction is more significant.

On the one hand, the gender role theory suggests that men are expected to pursue material success, while women are expected to play the role of caregivers, thereby affecting the direction, intensity, and possible outcomes of work-family conflicts they perceive [7]. On the other hand, cognitive development theory, social learning theory, and gender schema theory emphasize the theoretical basis for men and women in psychology, social interaction, cognitive development, social experience, social intuition, knowledge and interests, personality, social attributes, and gender expectations [12]. Therefore, gender is not only related to the natural attributes of an individual's identity, but should also be regarded as a social relationship. The importance of physiological differences in society is due to the social relationships constructed above them. So, gender is a field of social inequality [16].

## 6 Conclusions and practical significance

### 6.1 Conclusions

Spouses participating in daily household affairs such as cleaning the room, washing clothes, and cooking can reduce the amount of household chores for their husbands or wives. Spouses doing household chores can significantly improve the marital satisfaction of both men and women, and their involvement in household chores has a greater impact on women's marital satisfaction. In modern society, both men and women enter the workplace and may engage in work to provide financial support for family development. However, in marital life, there can still be reasonable or unreasonable arrangements for household chores by men and women. Therefore, men and women show varying degrees of satisfaction in household activities. The theory of gender roles, role conflicts, role misalignment, and the "empathy altruism hypothesis" provide a theoretical basis for it.

The social gender theory believes that gender originates from social construction, and at the same time, gender determines individual behavior and social roles, which further promotes the value of men in terms of power, reputation, and wealth to be greater than that of women in terms of power, reputation, and wealth. Gender bias gives men advantages in job choices, family status, and job remuneration, which promotes them to have more voice and decision-making power. Of course, the greater their ability, the greater their responsibility, which also affects the formation, function, and

outcome of marriage. Therefore, in a family, family decision-making generally requires following the opinions of men. Family decision-making can significantly improve male marital satisfaction, while female participation in family decision-making can reduce male marital satisfaction. However, male participation in family decision-making has no significant impact on female marital satisfaction.

In addition to physiological differences, men and women also have gender differences constructed through psychological, cultural, and social means. Men and women have formed different stereotypes in society and families, such as having confident, independent, strong, resilient, and rational gender characteristics. However, women have gender characteristics of selflessness, caring for others, tenderness, vulnerability, irrationality, self sacrifice, and altruism. Both physical and mental health can significantly affect the marital satisfaction of both men and women, but the impact of men's physical and mental health on women's marital satisfaction is more significant. Gender difference theory, psychoanalytic theory, cognitive development theory, social learning theory, and gender schema theory emphasize that they provide a theoretical foundation for men and women in psychology, social interaction, cognitive development, social experience, social intuition, knowledge and interests, personality, social attributes, and gender expectations.

## 6.2 Practical significance

The family is an important unit in social development, and the harmony and stability of the family are an important foundation for social development. Therefore, building a harmonious and happy family is the common responsibility of every couple.

Role theory, gender role theory, gender difference theory, and social gender theory teach women and men a simple truth. This truth is that in the family or in society, there are differences in gender itself. Therefore, everyone must first fulfill their personal and social roles, and fulfill the objective requirements of gender roles for women and men. On this basis, when facing role conflicts and role dislocations, it is necessary to use the empathy altruism hypothesis to guide the trivial aspects of marital life. Both men and women need to think from the perspective of each other.

Assuming that a family itself is supported by men, and women take on the role of taking care of the family. When men work outside, they may also face job promotion and work pressure. Women also need to understand men's hard work. Therefore, when women take on household chores, men should also encourage and praise them appropriately, and should not scold women for not earning money to support the family. In fact, women also work very hard in household chores.

Assuming that both men and women in a family have jobs and share the financial expenses, family development, elderly care, and child care of the family, then both men and women should be considerate of each other and adhere to the principle of empathy altruism. Whoever has more leisure practice will take on more household labor. Whoever has more obvious strengths will play an advantage in a certain aspect, such as men who have graduated from university or above in mathematics, physics English and other courses are excellent, so he can guide children's homework more and pay more attention to their studies' development. Women can clean the house, cook and

wash dishes, and take care of their families more. Therefore, a clear division of labor in the family can improve the quality of marital life.

If a family is dominated by women, then men should not complain about their wives' dominance, because any woman needs emotional support from their family. Men need to take on more household chores, and at the same time, they need to constantly improve themselves and find a job for themselves. The amount of money earned is not important, but it is important to feel that as a social person, every day is meaningful.

In terms of family decision-making, both men and women should respect each other's feelings, and men should not be too male chauvinistic. Women should not be too small, have their own opinions and are willing to express their personal opinions. Even if there may be minor conflicts between men and women due to this, "meaningful arguments" may resolve many negative emotions and deepen understanding of each other, which will help them better understand how to love each other.

In today's rapidly developing society, physical and mental health is a basic requirement for everyone. Therefore, it is necessary to have psychological counseling institutions to help people with psychological problems solve their unhappiness, and both spouses need to work together to care for each other's family, emotions, and reasonable family responsibilities. At the same time, marriage is based on love, not profit. Only a marriage based on love may be more solid, as one will not give up on the other party due to life's hardships and setbacks, but will be more steadfast in supporting the other party to overcome difficulties and work together. Especially middle-aged people take on significant responsibilities for family and social development, and the pressure is even greater. Therefore, men and women should not complain to each other, but can also communicate with each other from the bottom of their hearts to achieve physical and mental relaxation and mutual support.

During the process of social change, this study did not investigate the differences in the ratio of "male leading outside and female leading inside" changes and their influencing factors, which provides a potential direction for future research.

In addition, marital satisfaction also comes from social relationships, not just gender differences defined by the natural attributes of gender itself. However, during the writing process of this article, it was not included as a variable related to social relations in data analysis, which is a deficiency of this article.

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## **Authors' contributions**

Yan Sun designed the article frame, processed and analyzed data, and wrote the article. Weiwei Wang proposed suggestions on the article, and draw the figure6-figure8 in the

article.

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