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The Influence of Different Gender Roles on the Formation of Attachment Types

--An Analysis from an Evolutionary Psychology Perspective

Xizhen Han[1,a,*]

[1]*Beijing Normal University•Hong Kong Baptist University United International College, Zhuhai City, Guangdong Province, China*
a. r130016017@mail.uic.edu.cn
**corresponding author*

Abstract: The formation of attachment style is closely related to the development of children and the formation of intimate relationship, which is an important subject in the field of psychology. Some previous studies have found significant gender differences in insecure attachment and romantic attachment styles in adulthood. Women crave secure attachment more than men do. When it comes to romantic attachment, men are more avoidant, while women show more anxiety. This paper searches and collates relevant theories and studies, integrating the physiological and psychosocial factors that lead to this difference. In the course of biological evolution, survival, reproduction, and sexual division of labor provide reliable explanations for the differences in the physical, psychological, and social experiences of men and women. Despite the limitations of the current study and the controversy surrounding the findings, a study of cognition in gay and straight groups provides an important clue that an individual's overall cognitive pattern shows a higher correlation with cognitive gender than with biological sex. In future studies, the determination of "gender" from the previous biological sex to cognitive sex selection may help to obtain more accurate experimental results.

Keywords: Attachment styles, Gender roles, Evolutionary perspective, Sex difference

1. Introduction

Scientific studies have shown that male and female genomes are largely identical, with only a few genes located on the X and Y sex chromosomes having sex differences. However, the expression of genes in cells and tissues varies greatly between men and women. As researchers have observed, both in the Stone Age and today in the 21st century, this makes for some significant differences in both physical and psychological characteristics between men and women. As an important research topic in the field of psychology, Individual attachment is closely related to child development, the formation of intimate relationship and even the development of personality characteristics. Attachment has been deeply studied, and it is found that there are gender differences in some of its types.

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1.1. Attachment types

John Bowlby [1] has carried out experiments to study the effects of infant separation from parents, and proposed the earliest psychological theory of attachment. Bowlby tried to explain the behavior of crying and screaming babies from the perspective of evolution. He guessed that crying is actually a behavior reinforced by natural selection in the past and allowing parental care to improve their chances of survival. Based on the above, Bowlby proposed to guide us to establish and maintain the social relationship "attachment behavior system" [2]. Based on how infants respond to separation and regression from their primary caregivers in unfamiliar environments, Bowlby identified three main types of attachment: secure attachment, anxious-resistant attachment and avoidant attachment. Later, based on the existence of some children whose attachment behavior is difficult to predict, the type of unorganized directed attachment was added [3]. It is generally believed that an individual's early experience of being cared for plays an important role in the formation of attachment styles. Attachment styles in childhood also further influence how people cope with close relationships in adulthood [4] [5].

1.2. Gender role

Gender roles refer to the general rules and expectations for the division of labor and social interaction of different genders that have been formed within specific historical contexts and cultures [6]. It is a set of behavioral norms corresponding to one's own gender that an individual obtains through imitation and learning in the process of socialization, reflecting different expectations and norms of male or female behavior in the social and cultural system, including different attitudes, emotions, personality characteristics and social behavior patterns held by men and women. That is, the patterns of male and female behavior that are considered appropriate in a given society. Gender roles vary according to different social and cultural backgrounds under normal conditions.

1.3. Evolutionary psychology

Evolutionary psychology is the study of behavior, thought, and perception from the perspective of biological evolution [7]. Evolutionary psychologists believe that current human behavior actually reflects the physical and psychological characteristics that promoted the survival and reproduction of human ancestors. Therefore, the perspective of evolutionary psychology usually starts from the psychological mechanism that has been formed, and deduces the generation and development process of this coping mechanism under environmental selection pressure.

2. Main body

2.1. Gender difference of attachment style

Early academic descriptions of attachment theory did not make gender distinctions. But in fact, later studies on attachment did find that men and women's attachment styles do differ significantly in some ways. According to the existing findings, the gender differences in attachment types mainly focus on insecure attachment and romantic attachment in adulthood.

Previous studies have found that attachment factors have strong correlation with gender temperament. This association was evident in insecure attachment types. Ciocca et al.'s [8] experimental results show that "putting relationships on the second" in a perceived style indicating insecure attachment types and "requiring approval" in an attachment style reflecting fear in insecure attachment types correspond to high masculinity and high femininity, respectively. Another study of college students found that women crave secure attachments more than men, and may prefer secure

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attachments to people who are significant to them [9]. Although the above experimental results are significant, This study is still limited by the age and region of the participants, and whether the results can be replicated on a wider scale needs further investigation.

Significant differences were also found between men and women in terms of romantic attachment. Generally, research on gender differences has described a pattern for college-age men reporting more avoidant attachment, erotic and agape love styles, to be more permissive about casual sex and to have a higher number of sexual partners, in comparison with women. In the formation and maintenance of sexual relationships, the recognition of affectional needs is often overlooked by men [10]. For women, the best predictor of relationship quality was the fact that their male partner was comfortable with closeness, while for men it was the fact that their partner was anxious about being abandoned or unloved [11]. Across countries, gender differences in romantic attachment styles in adulthood are common, with men more likely to be avoidant and women more likely to be anxious [12].

It is important to note that the differences in male and female attachment styles do not only appear in adulthood, but have been observed during the development of individuals in childhood. Current research on attachment has not found definitive evidence of sex differences in infancy and early childhood [13], but studies have observed significant gender differences in attachment bias in middle childhood [14]. Boys have higher avoidance levels, while girls have higher levels of focus/ambivalence [15] [16]. That is, the differences observed in middle childhood are similar to those observed in adulthood.

2.2. Biopsychosocial differences and attachment styles

The process of evolution shapes the biological structure and behavior of human beings. Since reproduction is the most important goal of biological evolution, sexual selection has become an important aspect of species evolution. Sexual selection provides a powerful explanation for the gender bias characteristics of humans. For example, different foraging divisions in the evolutionary history of males and females have shaped the spatial abilities with significant gender differences (male's orientation ability and female's location memory ability) [17][18][19]. Based on current evidence, sex differences in neurodevelopment and brain tissue are important reasons why sexual selection is able to shape individual behavior. The direct source of this sex-biased brain structure is the difference in chromosome complement and gonad types between males and females.

A large number of studies have shown that the concentration of sex chromosome complement and gonadal hormone has a direct effect on the brain structure of mammals. In human males, the SRY gene on the Y chromosome causes embryonic gonad ridges to develop into testes. Women without a Y chromosome develop ovaries. Different gonads cause males and females to develop at different concentrations of sex hormones. Studies have shown that sex hormones cause mammals to develop sex-biased brain tissue and are suspected to be an important factor in helping individuals develop gender-specific cognitive abilities [20] [21].

Women's menstruation, based on its periodic characteristics, provides effective information for the activation of cognitive function. Some studies have shown that the body has a higher level of spatial intelligence during the early part of the menstrual cycle when the follicle is low in estrogen and progesterone than when it is high in estrogen and progesterone [22][23][24]. The spatial intelligence here is the mental rotation in cognitive psychology, that is, the ability of a person to imagine a two-dimensional or three-dimensional rotation of an object using images in the mind. Biological studies have shown that estradiol and progesterone accumulate in the brain, and the specific receptors for these two hormones (ERα and ERβ for estradiol; PRA and PRB for progesterone) are widely distributed in the hypothalamus, limbic system and other brain regions related to reproductive and cognitive function [25] [26] [27]. Another more recent study found that the pattern of the menstrual cycle's effect on brain activation was very similar in both spatial navigation and verbal fluency, and

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excluded the effect of shifts in cognitive strategies [28]. The results showed that activation levels in the hippocampus varied with the menstrual cycle. The opposite effects and interactions of estradiol and progesterone on hippocampal activation were also confirmed [28].

Current research on the effects of the menstrual cycle on cognition remains controversial. Some studies have found no differences in cognitive processes among individuals during this cycle [29]. The small sample size and methodological problems have also caused some researchers to question the effect of this effect [30].

In addition, androgens seem to have a certain regulatory effect on gender dominance cognitive ability [31]. Testosterone, for example, has been found to promote mental rotation in young and middle-aged men [32]. Another study also reported a positive correlation between testosterone and cognitive processing efficiency [33]. Of course, similar to the estradiol and progesterone mentioned earlier, there are some contrary conclusions about the regulatory effects of testosterone on cognition in the academic community. Therefore, the level of its influence needs to be further explored. But there is no denying that a large number of physiological and psychological measurements have provided considerable evidence for the effects of sex hormones on cognition.

From the point of view of the needs and purposes of biological evolution, the above physiological differentiation of males and females is also tracable. According to the concept proposed by Bowlby [1] conceptual perspective, attachment is an evolutionary mechanism that ensures the survival of the young. But when people look at romantic attachment differences in adulthood, it can be seen that sex differences in attachment on the other hand satisfy the fundamental goal of biological evolution: reproduction. Given the fatal drawbacks of parthenogenesis in biological evolution, the physiological and cognitive sex differentiation we have discussed above undoubtedly provides the necessary conditions for sexual reproduction. These ideas which based on evolutionary biology, also partially explains why no sex differences in attachment have been found in early childhood. Because survival is still the main problem in early ontogeny, there is normally no gender difference in crises at this stage in human society. When individuals enter middle childhood and adolescence, they will face new tasks of mating and reproduction, so they develop coping patterns with significant gender differences according to the division of parenting.

2.3. Gender roles and attachment styles

In the study of sex differences in attachment, the researchers did find evidence for biological factors, they also found that the link was influenced by cultural and social factors. For example, in the test of mental rotation ability, Chinese men and American men have different pursuit preferences for accuracy and speed [33]. This phenomenon inspires us to further explore the influence of psychosocial factors on the attachment formation of individuals of different genders.

Bowlby [5][34][35] proposed that the attachment relationship between young children and their caregivers actually reflects the formation of a general expectation of themselves and others. That is, such a processing mode actually reflects the individual's deep sense of self-worth. This built-in pattern plays an important role in determining the individual's judgment of the environment and behavioral development, and is also an important factor in shaping adult attachment patterns.

This is similar to the mode of action of gender role recognition. Gender roles are characterized by a person's identification and representation of feminine and masculine characteristics and behaviors [36] [37]. According to sex-role mediation theory, gender role identification may emphasize the cognitive performance of gender types through socially acceptable attitudes and behaviors associated with each sex [38]. The more strongly a person identifies with their biological gender, the more they work to align gender roles with social norms [39]. According to Bowlby's role in shaping adult attachment patterns, a reasonable hypothesis can be put forward that gender role differences may be one of the important reasons for gender differences in attachment patterns.

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In fact, there is evidence indicate that individuals who are superficially perceived as male or female experience general differences in different areas of life [40]. According to the central view of social psychology in the past, social environment and cultural background will shape individual values and behavior patterns. These considerable, consistent, and persistent gendered socio-environmental factors can influence individual attachment styles by emphasizing cognitive representations of specific gender roles, which manifested as group differences between men and women. That is to say, the differences between men and women in attachment types are due to the stereotypes that are highly valued in most social cultures, such as the independence and bravery of boys and the delicacy and tenderness of girls [41]. Under such a value system, individuals may intentionally develop attachment styles close to their own gender during growth, rather than finding that there are natural differences between male and female attachment styles in adulthood.

Another experiment, based on parents with nurturing experiences, provides evidence in the other direction. The results show that parents' expectations of life value for their sons are generally higher than those for their daughters [42]. At the same time, other researchers have found that during the socialization of children, parents are more likely to teach girls internal attribution than boys [43]. The formation of attachment type often has a high correlation with the parenting style of parents and the attachment experience of individuals. The above differences in parental expectations and teachings during parenting are likely to cause boys and girls to develop different attribution patterns and further affect their attachment styles. In fact, girls did report lower levels of self-esteem, more negative self-image, and more sensitivity to their parents' poor parenting behavior than boys did during this period [43]. A lower sense of self-worth often leads to a more negative evaluation of parent-child relationships, which further increases girls' anxiety levels in attachment relationships.

From an evolutionary perspective, the differences in romantic attachment between men and women generally coincide with the long-term evolutionary investment and payoff of reproduction and the social division of labor in raising offspring [44]. Men generally invest less than women in reproduction and parenting, and this difference in investment leads to different romantic attachment strategies. By avoiding attachment, males reduce their commitment and investment in raising offspring in order to pursue short-term mating, thereby increasing mating odds. Women, on the other hand, tend to prefer long-term mating relationships because they invest more in breeding. Increase the partner's involvement in parenting as much as possible through attachment with focused and anxious characteristics.

3. Discussion

This article collates past research and findings on attachment mentioned above, and it can be seen that men and women differ in insecure attachment and romantic attachment. Previous researchers have looked at how men and women differ in their physical, psychological and social experiences. The results of the study demonstrated that different sex hormone levels and cycles do effect individual brain structure and cognitive development were found. At the same time, considering the influence of social environment on individual cognition and behavior, it is a good answer to the phenomenon of different gender differences in attachment types in different countries obtained in some studies. The above evidence also fits well with the theories and views of survival, reproduction and gender division of labor in evolutionary psychology.

However there are still some inconsistent experimental findings in research on the topic, which makes it still controversial whether the explanation of this topic can be generalized to a larger scale of the general phenomenon. After comparing the possible causes of the differences between male and female attachment types integrated in the paper, it can be found that the influence of both physiological and psychosocial factors ultimately focuses on the differences in cognitive ability. Yin Xu et al. [45] provided us with a new idea by comparing heterosexual people and homosexual people

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to explore the cognitive performance of different sexual orientations. The findings confirm the transgender hypothesis, which states that the brain structure of gay individuals is more similar to that of their cisgender psychological gender counterparts. Another study of the cognitive characteristics of gay men also showed that gay men were more similar to heterosexual women in terms of cognitive ability than gay men, with significant gender differences [46]. Therefore, it is reasonable to speculate that, in addition to sociocultural influences, the inconsistent results of past studies on differences may be due to the fact that most previous studies have only identified different sex groups based on biological sex. Future studies can more accurately classify gender groups by combining biological sex and sexual orientation, and may get more accurate results.

4. Conclusion

In conclusion, men and women do have significant differences in insecure attachment and romantic attachment. Physiological factors such as gonadal differentiation, hormone level, brain structure and gender role division in the process of social development have important effects on the formation of attachment style.

At present, most studies are based on the biological sex of the subjects, But research on the gay community suggests that gender roles may be related to an individual's perception of their own gender. This opens up new ways of thinking about whether an individual's perceived sex has a greater impact on attachment style than their biological sex. If the relationship between perceived gender and attachment type can be further studied, people can classify and predict the formation of attachment type more accurately.

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