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The Influence of Family Structure and Gender on Adolescent Development: A Comparative Study of Only Children and Non-Only Children

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Abstract:

Adolescence is a critical developmental stage characterized by significant physiological, psychological changes. Adolescents' mental health is closely linked to their personal development, family well-being, and societal harmony. In the past decades, Chinese society has experienced significant changes in family structure, transitioning from a one-child policy to families with multiple children. This study examines the impact of family structure on adolescents in term of the mental health, personality traits, and behavioral characteristics, focusing on differences between only children and those with siblings. Gender differences are also discussed. A questionnaire on family and personal growth was sent on an online platform. 138 valid responses from adolescents were collected. The findings indicate that over 70% of participants experienced anxiety. Meanwhile 60% of the participants reported symptoms of depression and high stress levels. Female adolescents exhibited significantly higher anxiety and stress levels than males, and only children showed greater anxiety compared to those with siblings. However, the study challenges traditional stereotypes of only children, revealing no significant differences in overall personality or behavioral traits between compared to non-only children. Additionally, gender and family structure interact to shape psychological characteristics. For instance, girls with younger brothers demonstrated greater independence. At the same time, they show a stronger tendency to share resources. This study contributes to a deeper understanding of adolescents' psychological well-being and offers insights to support their healthy development.

Keywords: family structure; adolescents; mental health; only-children; non-only children; gender differences

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1. Introduction

Adolescence is a key stage of personal development. During this stage, adolescents undergo significant physiological, psychological, and social changes, often experiencing increased mood swings and displaying sensitive personality traits or behavioral characteristics (Steinberg, 2005). It brings various challenges during growth, i.e. developing a healthy self-perception, establishing effective interpersonal relationships, and managing stress and difficulties effectively. Many factors, including physiological changes, school environment, family structure, and sociocultural influences, impact adolescent mental health. Their need for social interaction grows significantly, and relationships with peers can influence their physical and mental well-being (Berndt, 1999). Immense academic pressure may also lead to symptoms such as communication difficulties, depression, and somatization (Eskiocak, 2005). The rapid physical development and hormonal fluctuations may contribute to heightened anxiety and depression (Petersen et al., 1988). Gender differences also play a role. Adolescent girls are more likely to experience mood disorders, while boys are more prone to have behavioral problems (Hankin, 2001). Furthermore, factors such as family emvironment, and broader sociocultural influences such as societal expectations, cultural identity, and gender roles, significantly affect adolescent mental health (Markus & Kitayama, 1991; Grabe et al., 2008; Lerner, 2012).

Family environment is a crucial factor of adolescents' mental health. Research indicates that family structure, the quality of familial relationships, i.e. the level of parent-child interaction, the relationship with siblings, significantly shape adolescent psychological development. Unhealthy family dynamics increase the risk of adolescent psychological issues (Conger et al., 1994). Over the past decades, China's family planning policies have led to profound shifts in family structures. It changes from the one-child policy to two-child and even three-child policies. Under this background, many families have chosen to have more than one child. This transition from being an only child to part of a multi-child family has introduced new dynamics, influencing adolescents' mental health, personality traits, and behavioral traits.

This study adopts social research methods, including questionnaires and interviews, to investigate the psychological, behavioral, and personality development of adolescents It aims to explore the influence of gender and family structure on adolescent personal development. The effect of gender is also discussed. By providing insights into the current state of adolescents' mental health, personality, and behavioral traits, this study seeks to assist adolescents, parents, and educators in better understanding these dynamics, offering empirical evidence for adolescent education, and contributing to the healthy growth of adolescents.

2. Method

2.1 Participants

The team distributed questionnaires to adolescent students via an online platform and collected 138 valid responses. Among the participants, 52 were male and 86 were female. Only children comprised 35.5% of the sample, while non-only children accounted for 64.5%. The average age of the respondents was 15.67 years, and the standard deviation is 1.35.

2.2 Design

2.2.1 Questionnaire research

Questionnaire research is a widely used method for collecting data by designing and distributing surveys to gather public opinions. In this study, a questionnaire on family structure and adolescent mental health, behavioral and personality traits were developed and distributed to collect relevant data. The collected data will be analyzed using SPSS and Excel to derive findings and conclusions.

2.2.2 Questionnaire structure

A structured questionnaire was developed to gather information on subjects' personal background, family structure, mental health, personality traits, behavioral traits and family relationships. The questionnaire consists of 34 questions, including single-choice, multiple-choice, short-answer, and five-point Likert scale questions.

The personal background section includes seven questions on age, gender, and family structure (whether the subject is an only child and sibling-related information). The mental health section assesses anxiety, depression, stress levels, and self-evaluation of mental well-being. The personality and behavioral habits section covers social tendencies, resource-sharing behavior, cooperation, thoughtfulness, selfishness, and independence, comprising a total of 17 questions. The family relationship section includes 10 questions evaluating parental favoritism, sibling dynamics, perceptions of different family structures (one-child vs. multi-child families), and parenting styles. The reliability and validity of the questionnaire were tested. A Cronbach's α coefficient is 0.80 and a KMO measure is 0.82, which indicate strong internal consistency and suitability for factor analysis.

2.3 Data analysis

The responses were filtered and yielded 138 valid responses. Descriptive statistics were used to analyze the distribution of adolescents across different psychological states. Additionally, independent samples t-tests were conducted to examine the influence of gender, family structure, and other factors on adolescents' behavioral characteristics and mental health.

3. Result

3.1 The mental health status

The statistical analysis revealed that the overall mental health level of adolescents is relatively low. Seventy-two percent of the subjects reported experiencing significant anxiety. In terms of depression, 60% of the subjects exhibited notable depressive symptoms. Additionally, 50% of the adolescents reported experiencing high levels of stress.

3.2 The effect of gender

The independent samples t-test revealed significant differences between female and male subjects in anxiety levels, stress levels, and resource-sharing tendencies. The difference in depression levels between females and males did not reach statistical significance, while the p-value was very close to 0.05. Female subjects exhibited significantly higher anxiety and stress levels compared to males. Among male subjects, 67% reported experiencing anxiety, 52% exhibited depressive traits, and 69% were in a state of high stress. In comparison, these psychological conditions among female subjects was significantly higher. 77% female subjects reported experiencing anxiety, 67% showing depressive symptoms, and 80% having high stress levels. Furthermore, the analysis found that females had a significantly lower tendency to share resources compared to males.

Table 1: The effect of gender

	Sex	N	M	SD	t	p
Anxiety	Male	52	6.15	2.02	-1.98	0.01
	Female	86	7.05	1.96		
Stress	Male	52	3.15	1.20	-1.87	0.04
	Female	86	3.51	1.20		
Resource-sharing	Male	52	3.98	0.85	1.96	0.01
	Female	86	3.57	1.11		
Depression	Male	52	5.61	2.19	-1.56	0.06
	Female	86	6.33	2.16		

3.3 The effect of family structure

The independent samples t-test showed a significant difference in anxiety levels between only children and non-only children. Only children exhibited significantly higher anxiety levels. However, no significant differences were found between the two groups in other dimensions.

Table 2: The effect of family structure on adolescents

	Family structure	N	M	SD	t	p
Anxiety	Only	49	7.22	1.98	2.25	0.01
	Non-only	89	6.43	2.01		
Depression	Only	49	6.41	2.35	0.96	0.17
	Non-only	89	6.02	2.19		
Stress	Only	49	3.47	1.21	0.67	0.25
	Non-only	89	3.33	1.20		
Social tendency	Only	49	13.82	4.06	0.33	0.37
	Non-only	89	13.60	3.52		

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Cooperation	Only	49	15.76	3.37	1.10	0.14
	Non-only	89	15.18	2.67		
Selfishness	Only	49	2.71	1.32	0.49	0.31
	Non-only	89	2.62	0.96		
Thoughtfulness	Only	49	3.59	0.96	-0.36	0.36
	Non-only	89	3.65	0.92		
Independence	Only	49	3.78	1.03	0.65	0.26
	Non-only	89	3.66	0.95		
Resource-sharing	Only	49	3.57	1.23	-1.29	0.10
	Non-only	89	3.81	0.92		

3.4 The effect of younger brothers

The results of the independent samples t-test indicate that female adolescents with younger brothers demonstrated significantly higher levels of independence and resource sharing tendency compared to girls without a younger brother. However, no significant differences were found between boys with and without a younger brother in these two dimensions. This suggests that the presence of younger brothers may influence the development of certain behaviors or personalities.

Table 3: The effect of younger brothers

		Have younger brother	N	M	SD	t	p
Independence	Male	Yes	25	3.52	1.01	0.64	0.26
		No	52	3.67	0.93		
	Female	Yes	50	3.84	0.98	2.46	0.01
		No	35	3.34	0.87		
Resource-sharing	Male	Yes	25	3.88	0.73	0.27	0.40
		No	52	3.82	0.98		
	Female	Yes	50	3.88	0.80	1.34	0.09
		No	35	3.6	1.03		

4. Discussion

4.1 The mental health status

Statistical analysis of the questionnaire data suggests that there are issues regarding the mental health of adolescents at present. Over 70% of adolescents are experiencing anxiety. Meanwhile nearly 60% report symptoms of depression and high stress. In recent years, the age at which mental health disorders occur in China has been steadily decreasing. The risk of depression is significantly higher among adolescents than adults. The 2024 Research Report on Pain Points in Treatment and Rehabilitation of Depression in Children and Adolescents highlights that the average age of the sub-sample diagnosed with mood disorders was 13.41 years at the time of first diagnosis, and 13.74 years when they first had to leave school. The peak age of onset concentrated was around 14 years old. Under the pressures of academic demands, social competition, and family expectations, adolescents' mental health disorders have become increasingly common.

4.2 The effect of gender

The results of the questionnaire showed that female adolescents had statistically significantly higher levels of both anxiety and stress compared to male adolescents. The overall levels of stress, anxiety, and depression in males were in the 50%-70% range. However the percentages of these dimensions in females ranged from 70% to 80%. Previous research aligns with these findings, showing gender differences in the co-occurrence of anxiety and depressive symptoms among adolescents. Girls are more likely to experience symptoms of anxiety and depression, which is influenced by neurobiological, social, and environmental factors. Girls tend to report the anxiety symp-

tom "feeling scared". Whereas boys are more likely to experience "feeling guilty" (Zhang, 2024; Zhang, 2024). Moreover, studies have shown that adolescents, particularly girls, experience higher levels of stress exposure during late childhood and early adolescence. They report more anxiety and depressive symptoms than boys (Anderson, 2023).

4.3 The effect of family structure

The results revealed that the anxiety levels of only children were significantly higher than those of non-only children. This trend was also reflected in the open-ended questions and interviews. Many only children expressed feeling overwhelmed by their parents' high expectations, leading to increased stress. As the focus of their parents' aspirations, only children may bear a disproportionate amount of pressure, which can contribute to psychological burdens (Zhan, 2017). Additionally, siblings could be a crucial source of emotional support in childhood and adolescence. Research has shown that the warmth of sibling relationships is negatively correlated with loneliness, indicating that having siblings can enhance psychological well-being by offering emotional support and reducing feelings of isolation (Stocker, 2020). The absence of this support system for only children, compared to their peers with siblings, may further contribute to heightened anxiety and emotional difficulties.

4.4 The interaction effect of family structure and gender

"Elder sister" subjects with a younger brother showed a higher tendency to share resources and greater independence than female subjects in other non-only children families. In contrast, males did not show such differences. This is closely related to the traditional Chinese social culture of "elder sister as mother" family role compensation. In traditional Chinese culture, the concept of "the eldest sister is like a mother" has a long history, and the eldest sister plays a mother-like role in the family, giving love, care and teaching to her younger siblings. Especially in gender-preferred families, this situation places more demands on the "eldest sister" in the family (Lu, 2022; Liang, 2025). As a result, the specific role expectations and cultural background of women reinforce the "caregiver role" of the elder sister. Especially when the elder sister is also a teenager, they are required to take care of both themselves and others. This makes them more prominent in sharing and caring for others, as well as more independent and autonomous. In most cases, however, men are less expected to act as "caregivers" in the family.

4.5 Stereotype analysis

In the past, only children have often been stereotyped as inconsiderate, self-centered, and less independent due to being overly spoiled. To examine these perceptions, the questionnaire included a series of questions designed to measure these stereotypes. Data analysis showed no significant difference between only children and non-only children in these dimensions, which suggests that these long-standing stereotypes are not true. Several other studies have also found no significant differences between only children and non-only children in terms of socialization and personality development. Only children may receive more attention and resources due to the absence of siblings. However, this does not indicate a lack of independence or social interaction skills (Wan, 1984; Bao, 2011).

5. Conclusion

This study examines adolescents' mental health, behavioral habits, and personality traits between only children and non-only children. Data analysis reveals that adolescents generally experience significant psychological challenges, including high levels of stress and anxiety. Among them female adolescents are particularly affected. Family structure also plays a crucial role in adolescents' mental health. Only children tend to face higher psychological pressure due to excessive parental expectations. Additionally, the interaction between gender and family factors influences adolescent development. Female adolescents with younger brothers exhibit a stronger tendency toward caregiving and resource sharing. Last but not least, past stereotypes of only children as overly self-centered, lacking in care for others, or being less independent are not supported by the data. The only children in this study did not show significant differences from their peers in these aspects.

Despite these findings, the study has some limitations that need to be addressed in future research. First, the sample primarily consists of high school students aged from 14 to 17. Whereas adolescence spans from ages 12 to 18. Their psychological developmental characteristics at different stages are distinct. The narrow age range may limit the study's ability to capture the full span of adolescent psychological development. Future research will include younger participants to provide a more comprehensive and detailed understanding of adolescents' development. Second, the data collection was geographically limited. The majority of responses came from areas such as Shandong, Guangzhou, Jiangsu, Shanghai, and Zhejiang. This regional concentration may introduce biases. As cultural and economic differences across regions could influence

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the results. To improve the study's comprehensiveness, future research will expand data collection to more provinces and cities, enabling targeted comparisons across different regions.

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