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ARTICLE

Crazy Rotating: The Linear or Curvilinear Relationship of Parental Overparenting and Adolescent Internalizing Problems in China

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ABSTRACT: Background: Parental overparenting is highly prevalent in current Chinese families, and its psychological influences on adolescent mental health are of great academic and practical concern. However, limited research has examined the potential curvilinear relationship between different dimensions of parental overparenting and adolescent internalizing problems, as well as the moderating roles of adolescent gender and age in these relationships. The purpose of this study was to examine the unique and potentially curvilinear effects of different dimensions of parental overparenting on adolescent internalizing problems in the context of contemporary Chinese families. **Methods:** Data were collected from 285 adolescents (147 male, $Mean_{age}$ = 11.93) and their families across five cities in China at an initial assessment (Wave 1) and at a follow-up one year later (Wave 2). Hierarchical regression analyses were performed with SPSS 25.0 to examine the associations among the main variables. **Results:** The findings indicated that different dimensions of parental overparenting were differentially associated with adolescents' internalizing problems. Specifically, frequent comparisons of children's achievements with peers positively and linearly predicted adolescents' internalizing problems at Wave 2 ($\beta = 0.27$, $p < 0.05$). In addition, excessive affective involvement showed a U-shaped association with boys' internalizing problems ($b = 0.21$, $p < 0.01$), whereas excessive care exhibited a U-shaped association with adolescents' internalizing problems at Wave 2 ($b = 0.19$, $p < 0.05$). **Conclusions:** These results suggest that different dimensions of overparenting impact adolescent development in various ways, highlighting the need for providing appropriate support and guidance without excessive control in family parenting practices.

KEYWORDS: Parental overparenting; internalizing problems; adolescent; curvilinear relationship

1 Introduction

In recent years, a growing body of research has shown that adolescent mental health problems are steadily increasing worldwide, making them a major global public health concern [1,2]. According to data released by the World Health Organization in 2025, approximately one in seven individuals aged 10–19 suffers from a mental disorder, accounting for 15% of the global disease burden in this age group [3]. Among these disorders, depression, anxiety, and behavioral disorders are the leading causes of illness and disability in adolescents [3]. The mental health status of Chinese adolescents has similarly drawn widespread attention. Findings from a nationwide survey of nearly 74,000 children and adolescents aged 6–16 revealed that almost 15,000 of them fall into the high-risk category for psychological problems, with the prevalence of mental disorders reaching 17.5% [4].

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As one major facet of mental health problems, internalizing problems refer to difficulties directed inward, involving emotional and affective dysregulation such as anxiety and depression, representing an inward expression of distress [5]. Compared with externalizing problems, internalizing problems are more covert and less likely to be detected in a timely manner by parents or teachers, which increases the risk of neglect and delays in intervention [6]. The family serves as the primary context for adolescents' individuation and socialization, and parenting styles exert stable and lasting influences on children [6]. Overparenting, an emerging form of parenting, is often rooted in parental good intentions. Nevertheless, evidence indicates that overparenting can have detrimental effects on adolescents' mental health, with internalizing problems being particularly prominent [7–9].

It should be noted that there are several limitations in previous studies. First, empirical evidence on the association between parental overparenting and adolescent internalizing problems has not always been consistent. Second, most studies have conceptualized overparenting as a unidimensional construct, failing to capture the unique impact of its dimensions on adolescent internalizing problems. Third, much of prior work has predominantly focused on the linear relationship between parental overparenting and their children's internalizing problems, while overlooking the potential curvilinear relationship. Finally, although the association between parental overparenting and adolescent internalizing problems may vary across developmental stages and between genders, few studies have examined these potential moderating effects, particularly within the Chinese context. To address this gap in the literature, the main purpose of the current study was to explore the unique impact of different dimensions of parental overparenting on adolescent internalizing problems within the context of China. Specifically, it investigated whether these dimensions were associated with internalizing problems in linear or curvilinear patterns, and further explored the potential moderating roles of adolescent gender and age.

1.1 Parental Overparenting and Internalizing Problems in Adolescents

Overparenting usually refers to a parenting style in which parents excessively intervene in their children's lives to protect them from negative experiences and ensure their success [10]. Such parenting is typically characterized by high control, high warmth, low autonomy granting, and an intense focus on children's achievement and well-being [11]. It functions like a "Crazy Rotating" mechanism, repeatedly shifting between protective and controlling behaviors. In the Chinese context, overparenting is becoming increasingly prevalent. It is a widespread belief among Chinese parents that they should be responsible for their children's success, particularly in the academic domain, and that they should devote all available resources to their children's education [12].

It is important to acknowledge the limitations of previous studies. First, the empirical evidence regarding its developmental consequences for adolescents remains inconsistent. Earlier studies have primarily focused on emerging adults, showing that parental overparenting is often positively associated with internalizing problems such as anxiety and depression [8,13]. Although studies have increasingly examined adolescent populations, the findings have been divergent. For instance, as early as 2015, a study surveying 89 Jewish families found that higher levels of overparenting were associated with more anxiety and depressive symptoms in adolescents [14]. Leung and Shek [15] investigated the trajectory of overparenting in Hong Kong and found that adolescents reported lower levels of anxiety and depressive symptoms when they perceived a decline in maternal overparenting. Meta-analytic evidence has similarly indicated that overparenting exerts a negative impact on adolescent development in China [16]. However, other research has revealed completely different results. For example, Leung [9] identified a positive correlation between parental overparenting and adolescents' positive psychosocial competencies. There

was also a cross-sectional study conducted on adolescent patients with concussion, which found that overparenting had no relation to depression [17]. Overall, these findings indicate that the role of parental overparenting in adolescent development, whether functioning as a risk factor or a potential protective factor, remains unclear.

In addition, most previous studies have viewed parental overparenting as a unidimensional construct, overlooking the unique impacts of different dimensions of overparenting on adolescent development. However, research has shown that the structure of overparenting is multidimensional. Segrin et al. [10], using exploratory factor analysis, identified four dimensions of overparenting, including advice/affect management, anticipatory problem-solving, child self-direction, and tangible assistance. Luebbe et al. [18] proposed a three-dimensional structure consisting of information seeking, direct intervention, and autonomy limiting. Zong and Hawk [19] identified four dimensions, namely advice/affect management, anticipatory problem solving, information seeking, and emphasis on academic performance. Evidence also suggests that the different dimensions of overparenting may have varying impacts on children's development. For example, Scharf et al. [20] examined the unique impacts of different dimensions of overparenting on interpersonal sensitivity in emerging adults, revealing that only parental anticipatory problem-solving could positively predict interpersonal sensitivity in emerging adults. Luebbe et al. [18] reported that among the three dimensions of overparenting, direct intervention was most strongly associated with poor emotional functioning in emerging adults. Reilly and Semkovska [21] found that the perception of intrusiveness and control was most strongly related to depressive symptoms among Irish university students.

Finally, given that parenting behaviors play a crucial role in sociocultural transformation [22], the cultural specificity of different dimensions of overparenting remains to be explored. In the Chinese context, where collectivistic culture is highly emphasized, parents place significant emphasis on familism and interdependence. As a result, they regard children's personal achievements as a source of family honor, closely monitor their school performance and academic success [23], and often sacrifice their own needs to support their children's developmental needs [12]. Leung and Shek [12] examined the structure of overparenting by recruiting Hong Kong families and identified eight specific dimensions: close monitoring, intrusion into the child's life and decision-making, strong emphasis on academic performance, frequent comparisons of children's achievements with peers, anticipatory problem-solving, excessive care, overscheduling of children's activities, and excessive affective involvement. It is important to note that the dimensions of strong emphasis on academic performance and frequent comparisons of children's achievement with peers were culturally specific to the Chinese context. Therefore, the first aim of this study is to explore the relationship between different dimensions of parental overparenting and internalizing problems during adolescence within the context of China.

1.2 The Possibility of the Curvilinear Relationship

Previous studies were predominantly based on linear theoretical assumptions, positing the linear relationship between parental overparenting and psychosocial development of adolescents, while failing to capture the possibility of the curvilinear relationship. In contrast to some maladaptive parenting behaviors such as parental abuse, overparenting varies in degree, and evidence indicates that the moderate level of overparenting may have a positive impact on child developmental outcomes [10]. A study did examine the inverted "U-shaped" relationship between parental overparenting and the creativity of emerging adults and suggested moderate level of overparenting positively influenced emerging adults' creativity, whereas both low and high levels were detrimental [24]. This result provides empirical evidence to support the curvilinear relationship.

In addition, studies on parental involvement and child development provide relevant evidence [25,26]. For instance, Li et al. [25] applied the curvilinear model and demonstrated that the moderate level of parental educational involvement positively influenced children's academic performance. However, intensive involvement was associated with diminishing returns in academic performance and additional psychosocial strain on child development. Aligned with Li and his colleagues' findings, parental cognitive involvement had an inverted U-shaped effect on children's academic performance. Specifically, increases in parental cognitive involvement up to a certain threshold were associated with better academic performance, whereas involvement beyond that threshold predicted poorer academic performance [26]. Based on these empirical findings, the present study speculated that the association between some dimensions of parental overparenting and adolescent internalizing problems may follow a U-shaped pattern, in which both very low and very high levels are associated with higher internalizing problems, whereas moderate levels are associated with lower levels of internalizing problems. Therefore, the second purpose is to examine the linear or curvilinear relationship pattern between different dimensions of overparenting and internalizing problems in adolescents.

1.3 The Moderating Role of Gender and Age

When examining the effects of parental overparenting on adolescent internalizing problems, it is important to consider potential moderators. Adolescent gender may serve as a potential moderator in this relationship. For example, parents may engage in varying levels or types of overparenting behaviors depending on their child's gender. Empirical studies, for instance, have shown that girls report higher levels of parental monitoring (e.g., social media monitoring and curfews) than boys [11]. Additionally, a child's gender might moderate how parental overparenting influences their psychosocial development. However, research on gender as a moderating factor has yielded inconsistent findings. According to the gender intensification hypothesis, socialization processes encourage adolescents to adopt traditional gender roles [27]—boys are typically granted more autonomy and freedom, whereas girls are more often protected [28]. This pattern might lead boys to expect and psychologically benefit from parenting practices that promote autonomy [29]. Consequently, the autonomy restrictions inherent in overparenting may be particularly detrimental for boys. Consistent with this view, evidence has shown that inappropriate parental control tends to have more adverse effects on boys [30]. On the other hand, there is a view that girls are more accurate than boys in identifying emotional content in verbal and nonverbal cues [31] and are more sensitive to relational stimuli (such as parenting behaviors) [32]. Therefore, overparenting may exert stronger negative effects on girls. Supporting this perspective, some studies have found that helicopter parenting is more likely to undermine mental health and well-being in girls than in boys [33,34]. Nevertheless, other research suggests that offspring gender may not directly influence the effects of overparenting [35,36].

In addition, adolescent age should be considered as another moderator. Individuals at different developmental stages have distinct developmental tasks and psychological needs, suggesting that the impact of perceived overparenting on internalizing problems may vary significantly across age groups. Research examining the relationship between overparenting and internalizing problems in early adolescence remains limited. One study involving primary school students found that overparenting was positively associated with favorable parent–child relationships; early adolescents tended to perceive overparenting practices as normative or even authoritative-like parenting [37]. In contrast, longitudinal findings by Zhang and Wang [38] revealed that overparenting negatively influenced the developmental trajectories of anxiety and depression as well as overall psychological adjustment in early adolescents. As adolescents

grow older, the need for autonomy becomes increasingly important [39], and they begin to expect their parents to relinquish control and grant them greater independence [40]. Therefore, the negative effects of overparenting may become more pronounced in adolescent populations. Supporting this idea, Liu et al. [41] through a survey of 1255 junior high school students, found that overparenting undermined adolescents' self-esteem and self-efficacy and could translate into long-term psychosocial adjustment problems. However, some research with junior high school samples has reported positive associations between overparenting and adolescents' positive developmental outcomes [42]. Studies examining the moderating role of age in the effects of overparenting are scarce, and the findings that do exist are inconsistent. A survey of 4979 primary and secondary school students showed that the negative predictive effect of overparenting on internalizing problems weakened with age [9]. A meta-analysis indicated that the association between overcontrolling parenting and adolescent problem behaviors was stronger in older samples [43]. Yet, another meta-analysis on the relationship between overparenting and offspring internalizing problems did not find evidence for age as a moderator [44].

Overall, the third aim of the current study is to investigate the moderating roles of gender and age in the relationship between different dimensions of parental overparenting and adolescent internalizing problems.

1.4 The Current Study

Previous research has indicated that mental health tends to decline from childhood to adolescence, with teenagers being at a high-risk stage for developing internalizing problems [45,46]. Therefore, the present study focused on adolescents aged 10 to 14 in the Chinese cultural context and investigated the relationship between different dimensions of parental overparenting and adolescent internalizing problems using a longitudinal design. Given that previous studies have suggested that overparenting is a multidimensional construct and that its dimensions may exert distinct developmental influences, this current study hypothesized that different dimensions of parental overparenting would have unique effects on adolescent internalizing problems (Hypothesis 1). Moreover, unlike maladaptive parenting behaviors such as abuse, overparenting is a matter of degree, and prior findings have pointed to possible curvilinear effects of parenting behaviors on youth outcomes [10,24]. Thus, this current study further hypothesized that some dimensions of parental overparenting may demonstrate curvilinear associations with adolescent internalizing problems, with moderate levels potentially being less detrimental or even adaptive, whereas both low and high levels may be harmful (Hypothesis 2). Finally, considering that both parenting practices and adolescent susceptibility to parenting behaviors vary by gender and age, this current study hypothesized that adolescent gender and age would moderate the associations between parental overparenting and internalizing problems (Hypothesis 3). Given inconsistent findings in the existing literature, these moderating effects were regarded as exploratory rather than confirmatory.

2 Methods

2.1 Participants

After obtaining informed consents from the schools, parents, and students, this study initially recruited 285 adolescents (age range = 10.00–14.00, $Mean_{age}$ = 11.93, SD = 1.34; 147 male) and their families at Wave 1 from five regions (Beijing, Hebei, Shanxi, Shandong, and Shenzhen) in China. These provinces were selected based on comprehensive considerations of economic level, geographical distribution, and cultural diversity, ensuring that the sample could be broadly representative of adolescents across China. Data were collected in schools through paper-and-pencil questionnaires. Adolescents with color blindness and major

medical diagnoses of physical or mental illnesses were excluded. At Wave 2, conducted one year later, all participants provided valid data, with 280 having complete records and 5 (1.75%) having partial missing data. Missing rates for all other variables were below 4%, and missing data were imputed using Multiple Imputation. Median monthly income ranged from 6000 to 10,000 RMB (approximately 845 to 1410 dollars) for fathers and from 4500 to 6000 RMB (approximately 635 to 845 dollars) for mothers. Regarding educational attainment, 42.6% of fathers and 40.2% of mothers had completed technical secondary school or less, while 55.8% of fathers and 57.3% of mothers had completed junior college or above.

2.2 Measurements

2.2.1 Basic Family Information

The basic family information questionnaire was used to collect the basic information of adolescents and the whole family, including the adolescent's age, gender, whether the only child, and the parental education level. The education level of parents was classified into six levels: primary school, junior high school, senior high school or technical secondary school, junior college, university or undergraduate, and graduate or above.

2.2.2 Parental Overparenting

Parental overparenting was assessed using the "Chinese Parental Overparenting Scale" developed by Leung and Shek [12], which consists of 42 items across 8 dimensions: close monitoring, intrusion of the child's life and direction, strong emphasis on academic performance, frequent comparisons of children's achievement with peers, anticipatory problem-solving, overscheduling of child's activities, excessive care, and excessive affective involvement. Mothers and fathers were asked to rate on a 6-point Likert scale ranging from 1 ("strongly disagree") to 6 ("strongly agree"), with higher scores indicating higher levels of overparenting. The overparenting score was calculated by averaging maternal and paternal overparenting. The Cronbach's alphas for different dimensions in the current study ranged from 0.88 to 0.92. The full version of the scale is presented in Appendix A Table A1.

2.2.3 Internalizing Problems

Children's internalizing problems were measured with the Internalizing Scale of Achenbach Child Behavior Checklist (CBCL) [47]. The Chinese revised version of the scale had been widely applied domestically and demonstrated good reliability and validity. It consists of 23 questions related to three different internalizing problems, including Anxious-Depressed (13 items), Withdrawn-Depressed (7 items), and Somatic Complaints (3 items). Ratings were scored on a 3-point scale ranging from 0 to 2, "Not True" (0), "Somewhat or Sometimes True" (1), and "Very True or Often True" (2), with higher scores indicating higher levels of adolescents' internalizing problems. The Cronbach's alpha in the current study was 0.94. The full version of the scale is presented in Appendix A Table A2.

2.3 Procedures

The study design and data collection procedures were approved by the Ethics Committee of Capital Normal University (CNU-20211202). Parental overparenting, adolescent internalizing problems, and demographic information were provided at Wave 1. Child Behavior Checklist was completed again one year later (Wave 2). As a token of appreciation for their cooperation in the study, children were provided with a small gift.

2.4 Statistical Analysis

Data analysis was performed with SPSS 25.0 (IBM Corp., Armonk, NY, USA) and R 4.5.2 (R Foundation for Statistical Computing, Vienna, Austria). First, Harman's single-factor test was performed to assess potential common method bias. Second, descriptive statistics and correlation analysis were conducted for preliminary data analysis. Third, independent sample t-tests were used to examine gender and age differences in adolescent internalizing problems. Fourth, hierarchical regression analysis was conducted to examine the predictive effects of different dimensions of parental overparenting on internalizing problems, as well as the moderating effects of gender and age. Finally, curvilinear relationships between parental overparenting and adolescent internalizing problems were further examined using R software (version 4.5.2), with the assistance of the *haven* (version 2.5.5) and *interactions* (version 1.2.0) packages.

3 Results

3.1 Verification of Common Method Bias

In this study, data on parental overparenting and adolescent internalizing problems were collected exclusively through self-reports. Reliance on a single data collection method may introduce a common method bias, potentially reducing the validity of this study. Harman's single-factor method was applied to examine the common method bias. The results revealed that 15 factors had eigenvalues greater than 1, with the first common factor only accounting for 21.04% (<40%) of the variance, indicating no significant common method bias was present in this study.

3.2 Preliminary Analysis

The descriptive statistics and correlation analysis for each variable were presented in Table 1 and Fig. 1. Correlation analysis results showed a positive correlation between internalizing problems at Wave 1 and Wave 2 ($r = 0.30$, $p < 0.001$). Therefore, internalizing problems at Wave 1 was included as a control variable in subsequent analyses. Positive correlations were found among various dimensions of parental overparenting ($r = 0.18–0.58$, all $p < 0.01$). Intrusion of child's life and direction, frequent comparisons of children's achievements with peers, overscheduling of child's activities, excessive care, and excessive affective involvement were positively associated with adolescent internalizing problems at Wave 2 ($r = 0.13–0.30$, all $p < 0.05$). Independent sample t-tests revealed no significant gender and age differences in adolescent internalizing problems at Wave 2 ($t_{(283)} = 0.33$, $p = 0.74$, Cohen's d = 0.04; $t_{(283)} = -1.09$, $p = 0.28$, Cohen's d = −0.13).

Table 1: Descriptive analyses of the main study variables (N = 285).

Variables	OP 1	OP 2	OP 3	OP 4	OP 5	OP 6	OP 7	OP 8	Wave 1 IP	Wave 2 IP
Mean	4.10	3.68	4.25	2.71	3.86	2.92	2.98	3.28	0.13	0.16
SD	0.80	0.63	0.65	0.87	0.75	0.68	0.86	0.81	0.15	0.15

Note: OP 1 = Close monitoring; OP 2 = Intrusion of child's life and direction; OP 3 = Strong emphasis on academic performance; OP 4 = Frequent comparisons of children's achievement with peers; OP 5 = Anticipatory problem-solving; OP 6 = Overscheduling of child's activities; OP 7 = Excessive care; OP 8 = Excessive affective involvement; Wave 1 IP = Internalizing problems at Wave 1; Wave 2 IP = Internalizing problems at Wave 2.

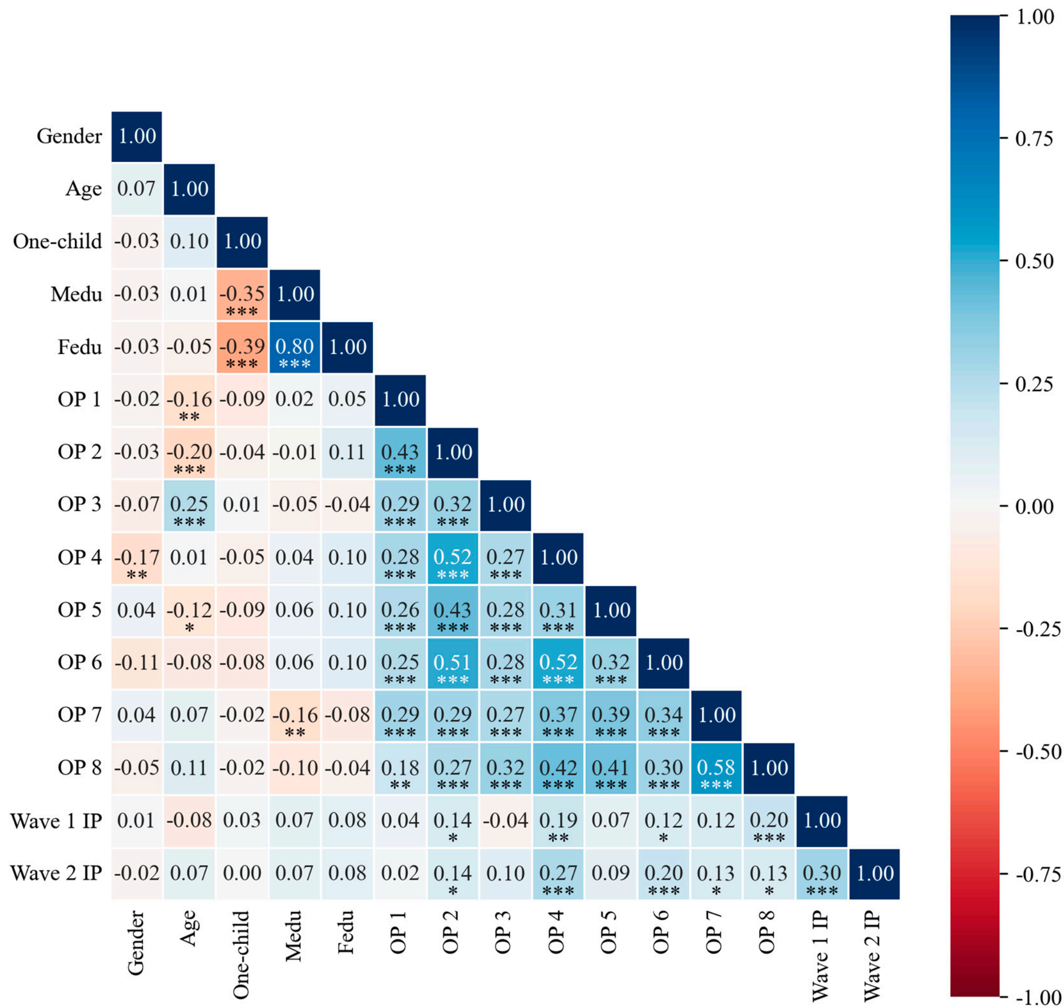

Figure 1: Correlation analyses of the main study variables. Note: $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$. Gender: 0 = male, 1 = female; Age: 0 = early adolescent, 1 = adolescent; One-child status: 0 = one child, 1 = not one child; Medu = Mother's education level; Fedu = Father's education level; OP 1 = Close monitoring; OP 2 = Intrusion of child's life and direction; OP 3 = Strong emphasis on academic performance; OP 4 = Frequent comparisons of children's achievement with peers; OP 5 = Anticipatory problem-solving; OP 6 = Overscheduling of child's activities; OP 7 = Excessive care; OP 8 = Excessive affective involvement; Wave 1 IP = Internalizing problems at Wave 1; Wave 2 IP = Internalizing problems at Wave 2.

3.3 Hierarchical Regression Analysis

First, this study standardized the predictor variables and calculated the quadratic effect and the two-way interaction terms with adolescent gender and age. Second, hierarchical regression analysis was conducted to examine the relationship patterns between different dimensions of overparenting and adolescent internalizing problems, as well as the moderating effects of adolescent gender and age. In these models, the main effects and quadratic effects of overparenting dimensions, as well as interaction terms, were entered as independent variables, adolescent internalizing problems at Wave 2 served as the dependent variable, and adolescent internalizing problems at Wave 1 were included as the control variable.

Multicollinearity diagnostics indicated the tolerance values for all predictor variables were greater than 0.23, and the variance inflation factors were all less than 4.30, indicating no severe multicollinearity among

variables. Results revealed that frequent comparisons of children's achievements with peers ($\beta = 0.27$, $p < 0.05$) and excessive affective involvement ($\beta = 0.28$, $p < 0.01$) at Wave 1 predicted internalizing problems in adolescents at Wave 2 (see Tables 2 and 3). No significant linear or nonlinear effects were found for the other dimensions of parental overparenting on adolescent internalizing problems.

Table 2: Hierarchical regression analysis (gender).

Predictive Variable	b	SE	β	95%CI	R^2	ΔR^2	F
First layer							
Wave 1 IP	0.27	0.06	0.27***	[0.16, 0.39]	0.09	0.09***	27.31***
Second layer							
OP 4	0.27	0.12	0.27*	[0.04, 0.51]	0.18	0.09*	3.24***
OP 8^2	0.21	0.07	0.28**	[0.06, 0.35]			
Third layer							
Gender × OP 8^2	−0.21	0.10	−0.22*	[−0.41, −0.01]	0.24	0.06	2.25***

Note: ^{2}represents the quadratic term. *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$. Only significant results are retained in Table 2, and the full data is provided in Appendix A Table A3. Wave 1 IP = Internalizing problems at Wave 1; OP 4 = Frequent comparisons of children's achievement with peers; OP 8 = Excessive affective involvement.

Table 3: Hierarchical regression analysis (age).

Predictive Variable	b	SE	β	95%CI	R^2	ΔR^2	F
First layer							
Wave 1 IP	0.25	0.06	0.25***	[0.14, 0.37]	0.09	0.09***	27.31***
Second layer							
OP 4	0.23	0.11	0.23*	[0.02, 0.44]	0.18	0.10*	3.33***
Third layer							
Age × OP 7^2	0.22	0.11	0.20*	[0.00, 0.45]	0.25	0.06	2.41***

Note: ^{2}represents the quadratic term. *$p < 0.05$, ***$p < 0.001$. Only significant results are retained in Table 3, and the full data is provided in Appendix A Table A4. Wave 1 IP = Internalizing problems at Wave 1; OP 4 = Frequent comparisons of children's achievement with peer; OP 7 = Excessive care.

3.4 Moderating Analysis

As shown in Table 2, the interaction between the quadratic term of excessive affective involvement and adolescent gender negatively predicted adolescent internalizing problems at Wave 2 ($\beta = -0.22$, $p < 0.05$). A follow-up simple slope analysis was conducted and revealed the quadratic term of excessive affective involvement positively predicted boy's internalizing problems at Wave 2 (quadratic term: $b = 0.21$, $p < 0.01$, see Fig. 2; linear term: $b = -0.04$, $p = 0.74$), whereas this effect was not significant in the girl group (quadratic term: $b = 0.00$, $p = 0.98$; linear term: $b = -0.10$, $p = 0.34$). The turning point value calculated from the standardized coefficients was 0.09, which fell within the valid observation range of excessive affective involvement, thereby indicating the U-shaped relationship between excessive affective involvement and boys' internalizing problems at Wave 2.

As shown in Table 3, the interaction between the quadratic term of excessive care and adolescent age positively predicted adolescent internalizing problems at Wave 2 ($\beta = 0.20$, $p < 0.05$). A follow-up simple slope analysis was conducted and revealed the quadratic term of excessive care positively predicted adolescent's internalizing problems at Wave 2 (quadratic term: $b = 0.19$, $p < 0.05$, see Fig. 3; linear term: $b = 0.15$, $p = 0.20$), whereas this effect was not significant in the early adolescent group (quadratic term: $b = -0.03$, $p = 0.70$; linear term: $b = -0.07$, $p = 0.52$). The turning point value calculated from the standardized coefficients was −0.38, which fell within the valid observation range of excessive care, thereby indicating the U-shaped relationship between excessive care and adolescent's internalizing problems at Wave 2.

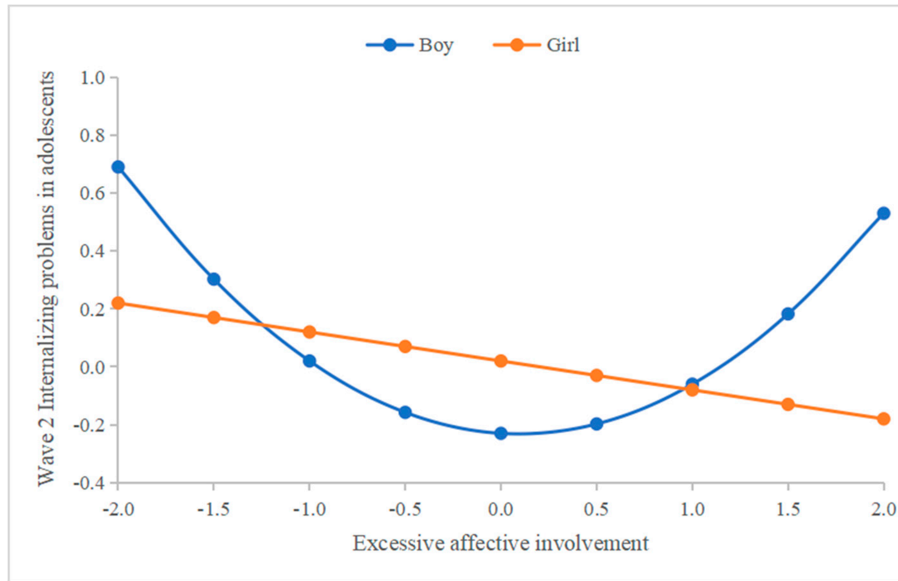

Figure 2: The moderate role of gender between excessive affective involvement and internalizing problems in adolescents.

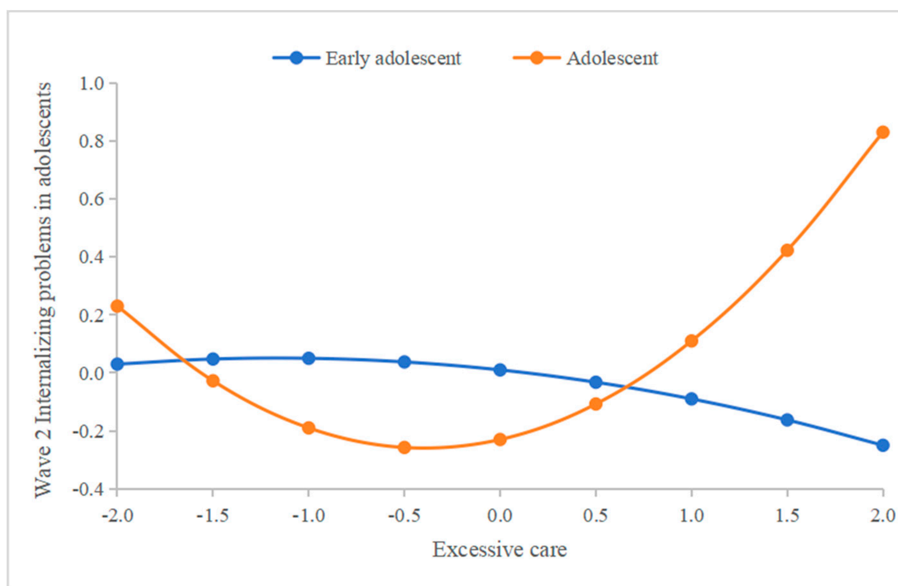

Figure 3: The moderate role of age between excessive care and internalizing problems in adolescents.

4 Discussion

In the context of the contemporary Chinese family, parental overparenting is increasingly widespread. Focusing on adolescents aged 10 to 14, the current study examined the linear and curvilinear relationships between different dimensions of parental overparenting and adolescents' internalizing problems one year later, as well as the moderating roles of adolescent age and gender. Overall, the findings provided partial support for Hypotheses 1–3. Hypothesis 1, which proposed that different dimensions of parental overparenting would have unique effects on adolescent internalizing problems, was supported, as some

dimensions were significantly associated with internalizing problems whereas others were not. Hypothesis 2, which predicted curvilinear associations between certain dimensions of parental overparenting and adolescent internalizing problems, was partially supported, with U-shaped relationships observed for excessive affective involvement and excessive care. Hypothesis 3, which proposed that adolescent gender and age would moderate these associations, was partially supported, as gender moderated the curvilinear association between excessive affective involvement and internalizing problems, and age moderated the association between excessive care and internalizing problems. The specific findings are discussed in detail below.

First, this study found a positive linear relationship between frequent comparisons of children's achievements with peers and adolescent internalizing problems, with no moderating effect of adolescent gender or age. Adolescents whose parents more frequently compared their academic achievements with those of peers tended to report higher levels of internalizing problems. One explanation is that Chinese parents often compare their children's academic performance with peers in a negative manner, using failure-focused academic social comparisons to stimulate their children's motivation while failing to meet their competence needs [48,49]. Therefore, such parenting practice may increase the risk of internalizing problems among adolescents. Additionally, parental negative academic social comparisons meant that parents were more concerned about their children's failure [50], which was closely associated with adolescent internalizing problems [51]. Another explanation was that parents' negative academic social comparisons led children to adopt similar negative academic social comparisons [52], which damaged their self-esteem and academic self-efficacy and ultimately contributed to the development of internalizing problems [53].

Second, this study revealed a U-shaped effect in the relationship between parental excessive affective involvement and internalizing problems in boys, supporting the argument that certain overparenting behaviors might have positive effects at moderate levels [10]. Extremely low levels of parental affective overinvolvement were associated with an increased risk of internalizing problems in boys. A potential explanation is that when parental excessive affective involvement was at a very low level, it is difficult to maintain parental sensitivity in parent-child interactions [54]. This lack of sensitivity in parent-child interactions may lead to a decrease in attachment security among boys, which can subsequently result in internalizing problems [55]. Similarly, extremely high levels of excessive affective involvement were also associated with increased internalizing problems among boys. This may be attributed to parents' greater use of parental psychological control during interactions with boys, leading to more conflicts between parents and boys [56] and ultimately exacerbated the internalizing problems in boys [57].

Third, this study revealed that excessive care demonstrated a significant U-shaped effect on internalizing problems among adolescents, whereas this pattern did not emerge among early adolescents. A possible explanation is that early adolescents may perceive excessively caring behaviors as normative, supportive, and consistent with parental authority [37]. At this stage, adherence to parental guidance remains relatively high, and the need for autonomy is not yet salient enough for excessive care to be experienced as intrusive or controlling. In contrast, as adolescents grow older, their developmental need for autonomy, independence, and self-regulation becomes increasingly prominent [39,40]. Consequently, both extremely low and extremely high levels of parental excessive care may violate their autonomy needs: insufficient care may be experienced as emotional neglect, whereas overly intensive care may be perceived as intrusion or overprotection, ultimately heightening internalizing distress. Overall, these results underscore the necessity of adopting a developmental perspective when evaluating the impact of overparenting, as the same parental behavior may be interpreted very differently across early adolescence and adolescence.

Finally, the present study found that several dimensions of parental overparenting did not significantly predict adolescents' internalizing problems. One possible explanation is the relatively small standard deviations observed in these subscales, suggesting that these behaviors are highly common among Chinese parents. When most parents cluster around similar levels of a parenting practice, the limited variability reduces the statistical power to detect meaningful associations with adolescent internalizing problems.

Several strengths of the current study should be highlighted. First, this study adopted a multidimensional perspective to explore the relationship between different dimensions of parental overparenting and internalizing problems among adolescents within the collectivist culture context. Second, the study extended previous linear research, examining curvilinear patterns of association between parental overparenting and the adolescent's development. Moreover, the study further investigated the age- and gender-specific patterns in the relationship between parental overparenting and adolescent internalizing problems, providing empirical evidence for the development of targeted and effective individualized intervention programs.

It is important to acknowledge several limitations of this study. First, despite adopting a longitudinal design, the tracking period of this study was relatively short, which limited our ability to capture the long-term dynamic effects of parental overparenting on adolescents' internalizing problems. Second, this study mainly focused on the moderating role of demographic variables such as gender and age. Future research should consider examining the moderating effects of children's own genetic and temperament factors. Finally, parental overparenting has been shown to influence adolescent development through mechanisms such as attachment anxiety and parent–child conflict [9,10,14]. In addition, research demonstrated that negative parenting styles can affect adolescent brain development, such as parental abuse impacting the size of the amygdala, corpus callosum, and gray matter volume in certain brain regions [58–60]. These findings highlight the need for future research to examine the underlying psychological and neural mechanisms between parental overparenting and internalizing problems in adolescents.

5 Conclusions

In summary, this current study found that different dimensions of parental overparenting had unique effects on adolescents' internalizing problems. Specifically, frequent comparisons of children's academic performance with peers predicted higher levels of adolescent internalizing problems. Excessive affective involvement showed a U-shaped relationship with internalizing problems in boys but not in girls. Additionally, excessive care showed a U-shaped relationship with internalizing problems in adolescents but showed no significant effect in early adolescents.

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Availability of Data and Materials: The data that support the findings of this study are available from the Corresponding Author, Shufen Xing, upon reasonable request.

Ethics Approval: This study was performed in line with the principles of the Declaration of Helsinki. Approval was granted by the Ethics Committee of Capital Normal University (CNU-20211202). Informed consents were obtained from the schools, parents, and students.

Conflicts of Interest: The authors declare no conflicts of interest.

Appendix A

Table A1: Chinese Parental Overparenting Scale.

Item	Mean	SD	Cronbach's Alphas
Close monitoring	4.10	0.80	0.89
1. My child develops under my close monitoring.			
2. I ask my child to report everything to me.			
3. I require my child to consult me in every decision.			
4. I keep track of my child's whereabouts.			
Intrusion of child's life and direction	3.68	0.63	0.88
5. I do not give up on my child if they do not try their best.			
6. I ignore my child when they fail to meet my requirement.			
7. I intrude on my child's plan of future development.			
8. My child develops under my meticulous plan.			
9. I expect my child to follow my direction.			
10. I make decisions in my child's study and work.			
Strong emphasis on academic performance	4.25	0.65	0.91
11. I am anxious about my child's academic performance.			
12. I try every effort to raise my child's academic result.			
13. I frequently consult teachers on my child's academic progress.			
14. I pay great attention in my child's examination.			
Frequent comparisons of children's achievement with peers	2.71	0.87	0.92
15. My child's academic report is my performance report.			
16. I frequently compare my child with their peers.			
17. My chats are around my child's performance in comparisons with peers.			
18. I feel 'lose face' when my child performs worse than others.			
19. I always expect my child to be better than others.			
20. I always track whether my child's performance is better than others.			
Anticipatory problem-solving	3.86	0.75	0.92
21. I solve problems for my child when they meet challenges.			
22. I intervene when I anticipate that my child will be in trouble.			
23. I "mow" away my child's developmental barriers.			
24. I try hard to solve problems for my child.			
25. I step in to reduce my child's barriers.			
26. I try every step to protect my child from harm.			
Overscheduling of child's activities	2.92	0.68	0.89
27. I schedule my child's activities intensively.			
28. My child lives under my schedule.			
29. I do not allow space for my child to plan their own activities.			
30. I require my child to attend tutorials or skill-learning classes.			
31. I feel fault if my child fails to build talents.			

Table A1: *Cont.*

Item	Mean	SD	Cronbach's Alphas
Excessive care	2.98	0.86	0.90
32. My child draws all my attention.			
33. I fulfill whatever my child wants.			
34. I am not surprised if others find that my child is indulged by me.			
35. My child is my favorite.			
36. My child's desire is my mission of work.			
Excessive affective involvement	3.28	0.81	0.91
37. I cannot endure when my child "fall down".			
38. Whenever my child is in trouble, I feel more stressful than do they.			
39. Whenever my child fails, I feel sadder than do they.			
40. When my child "falls down", I feel that I have responsibility.			
41. I get very upset when my child is sad.			
42. I feel guilty for not protecting my child from failure.			

Table A2: Internalizing Scale of Achenbach Child Behavior Checklist.

Item	Mean (T 1)	SD (T 1)	Mean (T 2)	SD (T 2)
Anxious-Depressed	0.17	0.21	0.19	0.20
1. Complains of loneliness.				
2. Cries a lot.				
3. Fears he/she might think or do something bad.				
4. Feels he/she has to be perfect.				
5. Feels or complains that no one loves him/her.				
6. Feels others are out to get him/her.				
7. Feels worthless or inferior.				
9. Nervous, high strung, or tense.				
10. Too fearful or anxious.				
12. Feels too guilty.				
17. Self-conscious or easily embarrassed.				
19. Suspicious.				
23. Worries.				
Withdrawn-Depressed	0.15	0.19	0.16	0.20
8. I would rather be alone than with others.				
15. Refuses to talk.				
16. Secretive, keep things to self.				
18. Too shy or timid.				
20. Underactive, slow moving, or lacks energy.				
21. Unhappy, sad, or depressed.				
22. Withdrawn, doesn't get involved with others.				
Somatic Complaints	0.08	0.15	0.10	0.16
11. Feels dizzy or lightheaded.				
13. Overtired without good reason.				
14. Physical problems without known medical cause.				
a. Aches or pains.				
b. Headaches.				
c. Nausea, feel sick.				
d. Problems with eyes.				
e. Rashes or other skin problems.				
f. Stomachaches.				
g. Vomiting, throwing up.				

Table A3: Hierarchical regression analysis (gender).

Predictive Variable	*b*	*SE*	*β*	95%CI	R^2	ΔR^2	*F*
First layer							
Wave 1 IP	0.27	0.06	0.27***	[0.16, 0.39]	0.09	0.09***	27.31***
Second layer							
OP 1	−0.03	0.10	−0.03	[−0.22, 0.16]	0.18	0.09*	3.24***
OP 2	−0.12	0.11	−0.12	[−0.33, 0.10]			
OP 3	0.01	0.10	0.01	[−0.19, 0.21]			
OP 4	0.27	0.12	0.27*	[0.04, 0.51]			
OP 5	−0.01	0.10	−0.01	[−0.21, 0.19]			
OP 6	0.13	0.11	0.13	[−0.09, 0.35]			
OP 7	0.04	0.11	0.04	[−0.17, 0.26]			
OP 8	−0.04	0.11	−0.04	[−0.25, 0.18]			
OP 1^2	−0.01	0.09	−0.01	[−0.17, 0.16]			
OP 2^2	−0.10	0.07	−0.17	[−0.24, 0.03]			
OP 3^2	−0.11	0.07	−0.14	[−0.24, 0.02]			
OP 4^2	0.05	0.07	0.06	[−0.09, 0.19]			
OP 5^2	0.02	0.07	0.03	[−0.12, 0.16]			
OP 6^2	0.04	0.07	0.06	[−0.09, 0.18]			
OP 7^2	0.09	0.08	0.12	[−0.07, 0.25]			
OP 8^2	0.21	0.07	0.28**	[0.06, 0.35]			
Gender	0.24	0.20	0.12	[−0.16, 0.64]			
Third layer							
Gender × OP 1	−0.05	0.14	−0.03	[−0.31, 0.22]	0.24	0.06	2.25***
Gender × OP 2	0.10	0.16	0.07	[−0.21, 0.41]			
Gender × OP 3	0.08	0.14	0.05	[−0.19, 0.35]			
Gender × OP 4	−0.13	0.16	−0.09	[−0.45, 0.19]			
Gender × OP 5	0.03	0.14	0.02	[−0.25, 0.31]			
Gender × OP 6	−0.03	0.16	−0.02	[−0.34, 0.27]			
Gender × OP 7	−0.07	0.16	−0.05	[−0.38, 0.24]			
Gender × OP 8	−0.07	0.15	−0.05	[−0.37, 0.23]			
Gender × OP 1^2	−0.02	0.11	−0.03	[−0.24, 0.19]			
Gender × OP 2^2	0.16	0.09	0.21	[−0.01, 0.34]			
Gender × OP 3^2	0.17	0.10	0.18	[−0.02, 0.35]			
Gender × OP 4^2	−0.11	0.11	−0.11	[−0.33, 0.11]			
Gender × OP 5^2	−0.05	0.09	−0.07	[−0.23, 0.12]			
Gender × OP 6^2	−0.07	0.10	−0.07	[−0.27, 0.14]			
Gender × OP 7^2	−0.07	0.11	−0.08	[−0.28, 0.15]			
Gender × OP 8^2	−0.21	0.10	−0.22*	[−0.41, −0.01]			

Note: ^{2}represents the quadratic term. $^*p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$. Wave 1 IP = Internalizing problems at Wave 1; OP 1 = Close monitoring; OP 2 = Intrusion of child's life and direction; OP 3 = Strong emphasis on academic performance; OP 4 = Frequent comparisons of children's achievement with peers; OP 5 = Anticipatory problem-solving; OP 6 = Overscheduling of child's activities; OP 7 = Excessive care; OP 8 = Excessive affective involvement.

Table A4: Hierarchical regression analysis (age).

Predictive Variable	*b*	*SE*	*β*	95%CI	R^2	ΔR^2	*F*
First layer							
Wave 1 IP	0.25	0.06	0.25***	[0.14, 0.37]	0.09	0.09***	27.31***
Second layer							
OP 1	−0.08	0.10	−0.08	[−0.27, 0.10]	0.18	0.10*	3.33***
OP 2	−0.06	0.11	−0.06	[−0.27, 0.16]			
OP 3	0.10	0.11	0.10	[−0.12, 0.33]			

Table A4: *Cont.*

Predictive Variable	*b*	*SE*	*β*	95%CI	R^2	ΔR^2	*F*
OP 4	0.23	0.11	0.23*	[0.02, 0.44]			
OP 5	−0.03	0.11	−0.03	[−0.24, 0.18]			
OP 6	0.08	0.10	0.08	[−0.12, 0.27]			
OP 7	−0.07	0.11	−0.07	[−0.28, 0.14]			
OP 8	−0.06	0.12	−0.06	[−0.29, 0.17]			
OP 1^2	−0.04	0.07	−0.05	[−0.18, 0.09]			
OP 2^2	−0.01	0.06	−0.02	[−0.13, 0.11]			
OP 3^2	0.03	0.07	0.04	[−0.10, 0.16]			
OP 4^2	−0.07	0.07	−0.09	[−0.22, 0.07]			
OP 5^2	0.01	0.06	0.02	[−0.12, 0.14]			
OP 6^2	−0.01	0.06	−0.01	[−0.13, 0.12]			
OP 7^2	−0.03	0.08	−0.04	[−0.18, 0.12]			
OP 8^2	0.07	0.09	0.09	[−0.11, 0.24]			
Age	−0.24	0.20	−0.12	[−0.64, 0.16]			
Third layer							
Age × OP 1	0.15	0.14	0.10	[−0.12, 0.42]	0.25	0.06	2.41***
Age × OP 2	0.08	0.16	0.05	[−0.24, 0.40]			
Age × OP 3	−0.11	0.16	−0.07	[−0.41, 0.20]			
Age × OP 4	−0.02	0.15	−0.01	[−0.31, 0.28]			
Age × OP 5	0.08	0.15	0.06	[−0.21, 0.37]			
Age × OP 6	0.04	0.15	0.02	[−0.27, 0.34]			
Age × OP 7	0.22	0.15	0.14	[−0.09, 0.52]			
Age × OP 8	−0.08	0.16	−0.06	[−0.39, 0.23]			
Age × OP 1^2	0.07	0.10	0.07	[−0.14, 0.27]			
Age × OP 2^2	0.07	0.09	0.08	[−0.11, 0.25]			
Age × OP 3^2	−0.08	0.11	−0.07	[−0.29, 0.14]			
Age × OP 4^2	0.15	0.10	0.17	[−0.05, 0.35]			
Age × OP 5^2	−0.03	0.09	−0.03	[−0.20, 0.14]			
Age × OP 6^2	−0.03	0.10	−0.03	[−0.23, 0.17]			
Age × OP 7^2	0.22	0.11	0.20*	[0.00, 0.45]			
Age × OP 8^2	0.05	0.11	0.06	[−0.16, 0.26]			

Note: ^{2}represents the quadratic term. $^*p < 0.05$, $^{***}p < 0.001$. Wave 1 IP = Internalizing problems at Wave 1; OP 1 = Close monitoring; OP 2 = Intrusion of child's life and direction; OP 3 = Strong emphasis on academic performance; OP 4 = Frequent comparisons of children's achievement with peers; OP 5 = Anticipatory problem-solving; OP 6 = Overscheduling of child's activities; OP 7 = Excessive care; OP 8 = Excessive affective involvement.

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