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Impacts of Autistic Behaviors, Emotional and Behavioral Problems on Parenting Stress in Caregivers of Children with Autism

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Abstract This study examined the effects of autistic behaviors and individual emotional and behavioral problems on parenting stress in caregivers of children with autism. Caregivers were interviewed with the Childhood Autism Rating Scale and completed the Strength and Difficulties Questionnaire and the Parenting Stress Index Short Form. Results revealed that caregivers of children with mild/moderate autistic behavior problems perceived lower parenting stress than did those of children with no or severe problems. In addition, prosocial behaviors and conduct problems respectively predicted stress in the parent–child relationship and child-related stress. The findings can provide guidance in evaluations and interventions with a focus on mitigating parenting stress in caregivers of children with autism.

Keywords Autistic behaviors · Emotional and behavioral problems · Parenting stress · Autism

Introduction

The challenges of raising a child with autism adversely affect caregivers, who face restrictions in social activities and elevated parenting stress (Lecavalier et al. 2005). Caregivers of children with autism have more parenting stress than those raising typically developing children, children with Down syndrome, or children with behavior disorders (Dumas et al. 1991). Elevated parenting stress can degrade the caregiver's functioning, causing depression and poor well-being (Phetrasuwan and Shandor Miles 2009), which in turn hampers a child's development and the effectiveness of early intervention (Osborne et al. 2008). It is therefore important to investigate parenting stress and its correlates that are amenable targets for intervention and prevention efforts.

Autistic behaviors, along with emotional and behavioral problems, have been widely discussed in terms of their associations with parenting stress (Hastings 2003; Lecavalier et al. 2005; Davis and Carter 2008). Children with autism often present a range of unusual behavior patterns in object use, relating to people, and verbal and nonverbal communication. Those unusual behaviors, called autistic behaviors, make children with autism appear different from other children, and they are often linked to difficulties in child development and education (Lecavalier et al. 2006; Windle and Windle 1996). In addition to autistic behaviors, children with autism also present emotional and behavioral problems such as emotional symptoms, hyperactivity, and peer problems, which are common in a wide range of

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children with disabilities (Dumas et al. 1991; Hastings and Brown 2002). Generally, studies have suggested that the more autistic behaviors the child presents, the higher parenting stress the caregivers perceive (Wang et al. 2012; Phetrasuwan and Shandor Miles 2009; Konstantareas and Homatidis 2006), and the same is true for emotional and behavioral problems (Hastings 2003; Lecavalier et al. 2005; Davis and Carter 2008; Estes et al. 2009; Estes et al. 2013; Walsh et al. 2013).

However, two critical issues still need to be addressed in studies examining the relationships of parenting stress with autistic behaviors and emotional and behavioral problems. First, results on the relationship between autistic behavior and parenting stress in joint considerations of emotional and behavioral problems have been contradictory (Davis and Carter 2008; Hastings et al. 2005). Hastings et al. (2005) reported that parenting stress could not be predicted by autistic behaviors, but Davis and Carter (2008) showed that delays in children's social relatedness, a trait of autistic behaviors, were associated with parenting stress. Since the results were inconclusive, it is unclear whether autistic behaviors are indeed associated with parenting stress, or the impact of autistic behaviors on parenting stress can be explained by their co-existing emotional and behavioral problems. More studies are warranted to clarify the relationship between autistic behaviors and parenting stress. Identifying parenting stress related to autistic behaviors could provide empirical evidence for clinicians to use in providing suggestions to caregivers.

Second, little is known about how each aspect of emotional and behavioral problems, such as emotional symptoms and conduct problems, individually contributes to parenting stress. Understanding the impacts of different aspects of emotional and behavioral problems on parenting stress may help clinicians target specific problems and plan corresponding interventions. However, the summary score has often been used to assess overall emotional and behavioral problems in children with autism (Phetrasuwan and Shandor Miles 2009; Hastings 2003; Lecavalier et al. 2005), except in the study of Davis and Carter (2008). The participants in Davis and Carter's study were caregivers of toddlers with autism. It is warranted to investigate the individual effects of emotional and behavioral problems on parenting stress in caregivers of older children with autism, such as preschool and school-aged children.

To fill the above gaps, the present study examined the effects of autistic behaviors and those of individual emotional and behavioral problems on parenting stress simultaneously. We hypothesized that autistic behaviors and each aspect of emotional and behavioral problems would be associated with high parenting stress. That is, if children present more autistic behaviors, emotional problems, and behavioral problems, the caregivers should perceive higher

parenting stress. Clarifying the effects of autistic behaviors and individual emotional and behavioral problems on parenting stress will be of use in developing and refining interventions for preventing and decreasing high parenting stress.

Methods

Participants

A cross-sectional survey was conducted from July to September 2012. Children with autism and their caregivers were recruited from five hospitals and pediatric clinics in Taipei and Tainan, two cities in Taiwan. Inclusion criteria were: (1) age of 3–12 years old; (2) diagnosis of Autistic Disorder based on the diagnostic criteria of the Diagnostic and Statistical Manual of Mental Disorders–Fourth edition, Text Revision (DSM-IV-TR) (American Psychiatric Association 2000) or the International Statistical Classification of Diseases and Related Health Problems 10th Revision (ICD-10) (World Health Organization 1992) by a pediatric psychiatrist, and pediatric psychiatrists made the diagnosis by using multiple information sources, including interviews of the parents, observation of the child, and multi-disciplinary assessments; also, these children had the Catastrophic Illness Card with the diagnosis of autism issued by the Bureau of National Health Insurance, Department of Health, Taiwan; and (3) caregivers could communicate in Mandarin.

Measures

Four measures were included in the present study. A brief demographic questionnaire was used to collect a child's age and gender, caregivers' ages, monthly household income, and number of children in the family. The remaining measures are described below.

Childhood Autism Rating Scale (CARS)

The CARS (Schopler et al. 1980), a 15-item scale, has been widely used to assess autistic behaviors in children aged 2 years and older. Items in the CARS target autism's characteristics, such as relatedness to others, body use, object use, and verbal and nonverbal communication. Each item is rated on a scale from 1 (normal) to 4 (severely abnormal), with a total score ranging from 15 to 60. A higher total score represents more autistic behavior problems. Two cut-off scores are used to categorize autistic behavior problems into three severity levels: no problems, mild to moderate problems, and severe problems. A total score below 30 indicates that a child does not meet the

clinical threshold considered autistic problems, one of 30–36 suggests mild to moderate problems, and one of 37 or higher represents severe problems (Schopler et al. 1980). The CARS has sound psychometric properties (Eaves and Milner 1993; DiLalla and Rogers 1994; Schopler et al. 1988).

Strengths and Difficulties Questionnaire-Chinese version (SDQ-C)

The Strengths and Difficulties Questionnaire-Chinese version (SDQ-C), a measure for children aged 4–16 years, was used to assess the emotional problems, behavioral problems and a strength in the children with autism. The SDQ-C covers five subscales with four assessing difficulties (emotional symptoms, hyperactivity/inattention, conduct problems, peer problems) and one assessing the strength (prosocial behaviors). Each subscale contains 5 items rated from 1 (not true) to 3 (certainly true), and generates a subscale score. Two cut-off points are used in each subscale to categorize children into three severity levels: close to average, at risk, and at high risk of having problems. Except the subscale of prosocial behavior, a higher score represents a higher number of emotional or behavioral problems. The reliability and validity of the SDQ-C have been well established (Du et al. 2008).

Parenting Stress Index Short Form-Chinese version (PSI/SF-C)

The Parenting Stress Index/Short Form-Chinese version (PSI/SF-C) was used to assess parenting stress. The PSI/SF-C is a 36-item scale measuring parent-related stress, child-related stress, and stress from caregiver-child relationships, which correspond to its three domains: parenting distress (PD), difficult child (DC), and parent-child dysfunctional interaction (PCDI). Parents rated their agreement with each item on a 5-point scale from 1 (strongly agree) to 5 (strongly disagree). Each domain generates a stress score. A higher score on a domain represents a greater level of stress perceived by the caregiver. In addition, each domain has a cut-off point, above which a significant level of parenting stress is indicated. The PSI/SF-C has sound reliability and validity (Yeh et al. 2001; Wen 2003).

Procedures

The present study was approved by the Institute Review Board of a teaching Hospital. Clinicians in five hospitals and pediatric clinics were contacted for their help in recruiting participants. Cover letters and consent forms

were distributed to caregivers referred by clinicians. Caregivers who agreed to participate would (1) be interviewed with the CARS by trained researchers, and (2) fill out three questionnaires, including a brief demographic questionnaire, the SDQ-C and the PSI/SF-C. Completed questionnaires were returned and then researchers checked for any missing information.

Data Analysis

Descriptive analysis was conducted to characterize the demographic data, autistic behaviors, the emotional and behavioral problems, and parenting stress of participants. Analysis of variance (ANOVA) with post hoc Fisher's Least Significant Difference (LSD) tests was conducted to examine if group differences existed in parenting stress between different severity levels of autistic behavior problems as well as the emotional and behavioral problems. Pearson's correlations coefficients were used to investigate the correlations of total scores of autistic behaviors and of individual emotional and behavioral problems with parenting stress.

Three multiple regression models were conducted to examine the impacts of autistic behaviors, individual emotional and behavioral problems on the three domains of parenting stress (PD, DC, and PCDI). The stress scores of the three PSI/SF-C domains were used as dependent variables respectively for three regression models. The CARS and the five subscales of the SDQ-C were examined as independent variables. Based on univariate analysis, the CARS and SDQ-C subscale scores or the severity level were used for regression analysis, depending on their linear or nonlinear relationships with parenting stress. In addition, significant demographic variables were also included for further analysis as covariates. The goodness-of-fit (GOF) measure, adjusted R^2 , was used to assess the adequacy of the fitted model. Statistical analyses were performed using SAS 9.1.3 software. Two-sided $p \leq 0.05$ was considered statistically significant.

Results

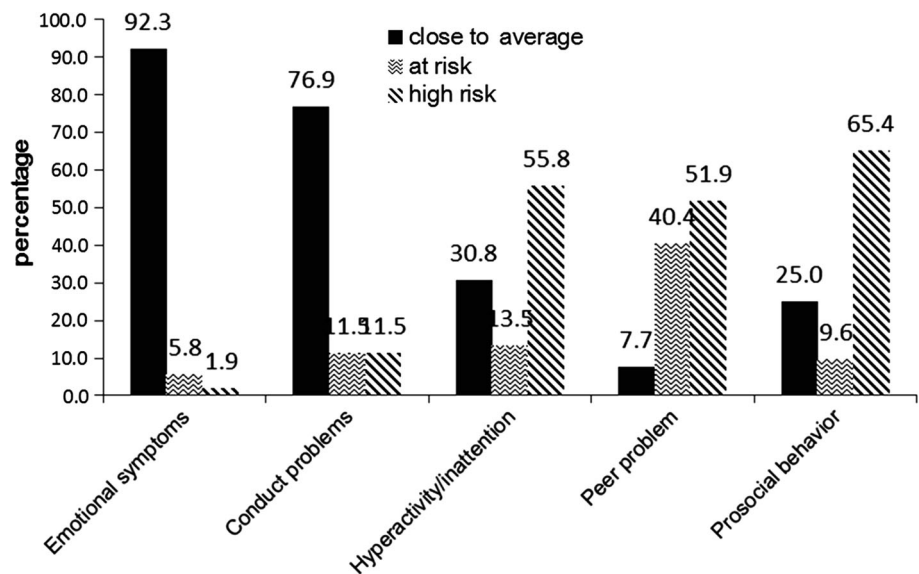
Demographic Characteristics of the Children and Caregivers

A total of 52 caregivers enrolled in the study. Table 1 shows the demographic characteristics of children with autism and their caregivers. The mean ages of the children and their caregivers were 6.33 and 39.24 years old ($SD = 2.3$ and 5.9), respectively. Most respondents (86.5 %) were mothers. Approximately 94 % of the

Table 1 Sample characteristics of the children and caregivers (N = 52)

Child	Mean (SD)/percentage
Age (years)	6.33 (2.3)
Gender (% male)	94 %
Childhood Autism Rating Scale	21 (5.00)
Strengths and Difficulties Questionnaire	
Emotional symptoms	2.90 (1.83)
Conduct problems	2.08 (1.69)
Hyperactivity/inattention	6.85 (2.20)
Peer problems	5.67 (1.75)
Prosocial behaviors	3.50 (2.36)
Caregiver/family	
Caregiver's age (years)	39.24 (5.9)
Responders (mothers)	86.5 %
Number of children in the family	
1	32.7 %
2	65.4 %
3	1.9 %
Monthly household income (NTD)	
< 50,000	32.7 %
50,000–100,000	36.5 %
100,000–150,000	25 %
> 150,000	5.8 %

children were boys ($n = 49$), and most children (65.4 %) had at least one sibling. Among caregivers, 67.8 % reported their monthly household income was above 50,000 Taiwan dollars (about 1,682 US dollars), which was about the average monthly income in Tainan and greater Taipei.

Fig. 1 Group distributions of the five subscales of the Strengths and Difficulties Questionnaire, including emotional symptoms, conduct problems, hyperactivity/inattention, peer problems, and prosocial behavior (N = 52)**Table 2** Descriptive statistics of three domains of the PSI/SF-C (N = 52)

Domains	Mean (SD)	Above cut-off points (n, %)
Parental distress	35.81 (8.65)	15 (28.8)
Parent–child dysfunctional interaction	31.34 (5.76)	11 (21.2)
Difficult child	35.50 (7.43)	21 (40.4)

Autistic Behaviors, Emotional and Behavioral Problems in Children with Autism

As for the severity levels of autistic behavior problems, 44.2 % ($n = 23$) of children presented mild to moderate autistic behavior problems, and 17.3 % ($n = 9$) presented severe autistic behavior problems. Comparison of the mean scores among four subscales assessing difficulties in the SDQ revealed higher mean scores in the domains of hyperactivity/inattention and peer problems (Table 1). Furthermore, most children were characterized as at high risk of having problems for hyperactivity/inattention, peer problems, and prosocial behavior (Fig. 1).

Parenting Stress in Caregivers of Children with Autism

Table 2 shows the mean scores and proportions of caregivers perceiving high parenting stress in three domains of the PSI/SF-C. Among the three domains, mean scores were higher in DC and PD. In addition, the highest rate of high parenting stress was in DC; 40.4 % caregivers scored above the cut-off point. That result indicated that DC was the most stressful area for caregivers of children with autism.

Table 3 Significant group differences on parenting stress by severity levels of autistic behavior problems as well as emotional and behavioral problems

Domains of parenting stress	Autistic behavior problems			Conduct problems			Hyperactivity/Inattention		
	No	Mild to moderate	Severe	Close to average	At risk	High risk	Close to average	At risk	High risk
Parent–child dysfunction interaction: Mean (SD)	28.25 (5.01)	34.43 (5.32)	30.33 (4.61)						
	$F(2, 49) = 8.10^{**}$								
	Post-hoc test: $2 > 3=1^a$								
Difficult child: mean (SD)				33.35 (6.26)	35.67 (4.23)	45.67 (7.80)	30.6 (4.81)	37.43 (5.06)	37.76 (7.91)
				$F(2,49) = 11.66^{**}$			$F(2, 49) = 6.21^{**}$		
				Post-hoc test: $2 = 3>1^a$			Post-hoc test: $2 = 3>1^a$		

^a Results of post hoc test: 1 = No problems/Close to average, 2 = Mild to Moderate problems/At risk, and 3 = Severe/High risk

** $p < .01$

Impacts of Autistic Behaviors and Emotional and Behavioral Problems on Parenting Stress

A significant difference was found in mean PCDI stress scores compared to the mean stress score in three domains of the PSI/SF-C across three severity levels of autistic behavior problems [$F(2,49) = 8.10, p < .01$]. Post-hoc LSD tests revealed that caregivers of children with mild/moderate autistic behavior problems had higher mean stress scores than those of children with no or severe autistic behavior problems (Table 3). In addition, significant differences were found in mean DC stress scores respectively across severity levels of conduct problems [$F(2, 49) = 11.66, p < .01$] and hyperactivity/inattention [$F(2, 49) = 6.21, p < .01$]. Post-hoc LSD tests revealed that the stress scores of the levels of mild/moderate and severe problems were significantly higher than that of the level of no problems in the DC domain (Table 3).

There were no significant correlations between the autistic behaviors and any domain of the PSI/SF-C ($p > .05$). Small to moderate correlations were found between three SDQ domains and the DC domain of the PSI/SF-C. These were emotional symptoms ($r = 0.30$), conduct problems ($r = 0.61$), and hyperactivity/inattention ($r = 0.36$).

Three regression analyses were conducted to examine if autistic behaviors, emotional and behavioral problems were related to parenting stress. Among demographic variables, only the variable of child’s age was significantly associated with DC stress score ($p < .05$). Therefore, the child’s age was included in the DC regression model as the covariate. In addition, since a nonlinear relationship was found between autistic behaviors and parenting stress based on univariate analysis, the severity level of autistic behavior problems was used as the ordinal variable in the regression

Table 4 Multiple regressions for parenting stress in the DC domain

	Estimate	T value	p-Value
(Constant)	30.35	6.20	.00**
Child age (month)	.01	.38	.70
Emotional symptoms	.61	1.19	.24
Conduct problem	2.37	3.96	.00**
Hyperactivity/inattention	.45	.96	.34
Peer problems	-.78	-1.46	.15
Prosocial behaviors	-.57	-1.31	.20
Mild/Moderate autistic behavior problems	2.07	1.10	.28
Severe autistic behavior problems	-.21	-.08	.94

** $p < .01$

Table 5 Multiple regressions for parenting stress in the PCDI domain

	Estimate	T value	p-Value
(Constant)	30.51	7.63	.00**
Child age (month)	.00	-.09	.93
Emotional symptoms	.63	1.51	.14
Conduct problem	.62	1.27	.21
Hyperactivity/inattention	.07	.18	.86
Peer problems	-.48	-1.09	.28
Prosocial behaviors	-.77	-2.15	.04**
Mild/Moderate autistic behavior problems	6.18	4.01	.00**
Severe autistic behavior problems	.46	.22	.83

** $p < .01$

analysis. As for the DC model, the score of conduct problems contributed significantly to the stress score, accounting for 32.9 % of the total variance. The result

revealed that caregivers who had a child with more conduct problems perceived higher child-related parenting stress (Table 4). As for the PCDI model, mild to moderate autistic behavior problems and prosocial behaviors made significant contributions to the PCDI stress score, accounting for 40.0 % of the total variance (Table 5). The results showed that a caregiver who had a child with mild to moderate autistic behavior problems and a lack of prosocial behaviors perceived higher stress in the parent–child relationship. Regarding parenting stress on PD, no significant variables were found in multiple linear regression models.

Discussion

Our study investigated the impacts of autistic behaviors and those of individual emotional and behavioral problems simultaneously on parenting stress in caregivers of children with autism. The results revealed that caregivers of children with mild to moderate autistic behavior problems perceived higher stress in the parent–child relationship than did those of children with no or severe problems. Associated with child-related parenting stress were three domains of emotional and behavioral problems: emotional symptoms, conduct problems, and hyperactivity/inattention. When considering autistic behaviors, behavioral problems, and emotional problems jointly, mild to moderate autistic behavior problems and prosocial behaviors respectively predicted stress in the parent–child relationship, and conduct problems predicted child-related parenting stress.

It was noteworthy that caregivers of children with mild to moderate autistic behavior problems perceived higher stress in the parent–child relationship. This finding could explain Hasting et al.' finding (2005) that significant associations were not found between autistic behaviors and parenting stress, for linear relationships were considered between autistic behaviors and parenting stress in their study. The explanation for these nonlinear relationships may be that children having mild to moderate autistic behavior problems have more potential to improve their problems. Caregivers may invest more time and effort, demand more of their children, and ask their children to meet their expectations, thereby causing tension between the caregivers and their children and further increasing their parenting stress. On the other hand, for children within the group of no autistic behavior problems, autistic behaviors were not predominant characteristics, and their behavior patterns may be similar to those of typically developing children. Caregivers therefore may not pay much attention to their autistic behaviors and thus do not perceive them as a source of stress. In the same vein, caregivers of children with severe autistic behavior

problems may have lowered expectations of their children and therefore do not perceive much stress when taking care of their children. This result provides an important clinical message: Caregivers of children having mild to moderate autistic behaviors are at risk of perceiving high parenting stress. As a result, clinicians should pay more attention to this group when dealing with parenting stress in caregivers of children with autism.

Furthermore, it is intriguing to note that caregivers of children with more prosocial behaviors perceived lower stress in the parent–child relationship. It could be that the children's prosocial behavior, reflecting the degree of children helping, supporting, and empathizing others (King et al. 2005), promotes positive interactions with their caregivers. Caregivers might be satisfied with these interactions, which were assessed in items of the PCDI domain of the PSI/SF-C. This result suggests that intervention programs focused on facilitating prosocial behaviors may mitigate the stress in the parent–child relationship.

One finding of note was that conduct problems predicted child-related parenting stress when autistic behaviors, behavioral problems, and emotional problems were considered together. This association implies that conduct problems are critical for parenting stress in caregivers of children with autism, though only a quarter of the children in this study were at risk of having conduct problems. Lecavalier et al. (2005) also reported associations between conduct problems and parenting stress. Conduct problems are disruptive and rule-breaking behaviors (McMahon et al. 1998). Compared to emotional symptoms and hyperactivity/inattention, conduct problems more obviously contradict the caregiver's expectations and social norms. For example, stealing and cheating are often viewed as serious problems by the public. Therefore, caregivers may perceive great stress and challenges if their children have conduct problems. The results of this study highlight the importance of assessing conduct problems in children with autism and intervening. Clinicians, caregivers and children should work collaboratively to solve conduct problems to decrease parenting stress.

In contrast to the above, peer problems were not associated with parenting stress, though large portions of children were at high risk of having difficulties in these two domains (92 and 75 %, respectively). Although peer problems are relevant to the core symptoms of autism (poor social interaction), such problems may not directly influence caregivers when taking care of their children in daily life. Peer problems are often observed in the school or the community, where these children meet their friends. As a result, peer problems likely had a secondhand impact on these caregivers because caregivers may be informed about peer problems by children's teachers and peers rather than by their own experience of caregiving. The passive

perceptions may reduce the effects of peer problems on parenting stress.

A notable issue was that the percentage agreement of the diagnosis of autism between the DSM-IV-TR/ICD-10 and the CARS was only 61.5 % in our study. However, previous studies have reported that some children with autism or high functioning autism (HFA) are indeed less likely to achieve the clinical threshold of the CARS based on the caregiver's report. Mayes et al. (2009) reported that only 45 % of children with HFA scored in the clinical range on caregivers' reports. Moreover, two studies suggested that a cut-off score of 25.5 was most accurate in screening children with autism from those without it (Chlebowski et al. 2010; Mayes et al. 2012). Our study also found that 98 % of children scored above the suggested cut-off score 25.5 in interviews with caregivers. Alternatively, 86.5 % of the children in our study had been receiving long-term rehabilitation services. Therefore, their autistic behavior problems might have decreased, and they might have behaved more similarly to typically developing children.

It is noted that we adopted the caregiver's perspective to measure all variables of autistic behaviors and emotional and behavioral problems, as well as parenting stress. Children's behaviors can be assessed from the perspectives of caregivers, therapists, and teachers. However, since parenting stress is the caregiver's subjective perception when they take care of their children, consistent subjective observations from caregivers on children's behaviors could directly reflect whether those behaviors were sources of caregiver's parenting stress.

A limitation in this study is that the small sample size influences the generalization of the results. Nevertheless, consistent results from both univariate and multivariate analysis provide solid evidence for interpreting these results. Finally, the present study has made two contributions. First, the results of the study help clarify the conflicting results of previous studies concerning autistic behaviors contributing to parenting stress. Second, the present study specifies the effects of individual emotional and behavioral problems on parenting stress. These findings provide references for clinicians to make appropriate evaluations and develop interventions targeting specified emotional and behavioral problems, and it focuses attention on caregivers of children with mild to moderate behavior problems to help mitigate high parenting stress.

Conclusion

Our study found that caregivers of children having mild to moderate autistic behavior problems perceived higher stress in the parent–child relationship than did those of children with no or severe problems. In addition, prosocial

behaviors and conduct problems respectively predicted the stress of the parent–child relationship and child-related stress. The findings of this study could encourage clinicians to pay additional attention to caregivers perceiving high parenting stress. It could also help clinicians to target specified evaluations and interventions for emotional and behavioral problems in order to mitigate high parenting stress.

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Conflict of interest None.

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