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Suicidal risk among Chinese parents of autistic children and its association with perceived discrimination, affiliate stigma and social alienation

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Abstract

Background Caring for autistic children becomes challenging and may lead to negative psychological outcomes, even increasing the suicide risk (SR). Researchers have studied the SR among parents of autistic children in Western nations, but little is known about it in China and how it relates to perceived discrimination (PD), affiliate stigma (AS), and social alienation (SA). The current study aimed to reveal the SR prevalence rate among Chinese parents of autistic children, and clarify whether AS and SA may play mediating roles in the association between SR and PD.

Methods A total of 645 Chinese parents of autistic children were recruited to complete a series of scales to evaluate SR, SA, AS, and PD using the Suicidal Behaviors Questionnaire-Revised (SBQ-R), Perceived Discrimination Scale for Parents of Children with Autism Spectrum Disorders (PDS-FP), Affiliate Stigma Scale (ASS), and General Social Alienation Scale (GSAS), respectively. Then, the SR prevalence rate among Chinese parents of autistic children was evaluated; and the multiple mediation analysis and structural equation modeling with the bootstrap method were conducted to test the mediating effects of AS and SA in the association between SR and PD.

Results 34.6% Chinese parents of autistic children had high SR. In particular, the incidence rate of suicide ideation, suicide plans, suicide attempts, and suicide likelihood during the previous year were 49.8%, 11.9%, 2.5%, and 13.8%, respectively. Additionally, PD was positively associated with SR ($r = .40, p < .01$); and AS and SA showed significant mediating effects on the association between PD and SR ($p < .01$).

Conclusions The current study evaluated the SR prevalence rate among Chinese parents of autistic children, and clarified the mediating effects of AS and SA in the association between SR and PD. Findings might bring new insights and guidance for intervention of suicidality among Chinese parents of autistic children.

Keywords Autism spectrum disorder, Parents, Suicidal risk, Perceived discrimination, Affiliate stigma, Social alienation

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Introduction

Autism Spectrum Disorder (ASD) refers to a neurodevelopmental disorder characterized by impairments in social interaction and existence of repetitive behaviors and restricted interests [1]. Caring for ASD children becomes challenging due to its high medical expenses, long-term rehabilitation, poor prognosis, extra parenting challenges, and frequent humiliation by others. More seriously, it might negatively affect the mental health of the parents of ASD children [2, 3], and even leads to suicidal risk (SR) [4]. Previous studies have evaluated the SR rate in parents in Western nations. For instance, 37.5% parents of ASD children had high level of suicidal ideation [5]; and 26.6% mothers of ASD children reported suicidal behaviors during the previous year, being much higher than these with typically developing children (8.5%) [4]. However, the SR rate in parents of ASD children in China still remains unclear.

Additionally, previous studies have demonstrated the association between SR and attachment style, that between SR and depression, and that between SR and anxiety [5], but few studies have definitively linked SR to socially relevant factors such as discrimination, stigma, and social alienation [6, 7]. It should be noted that almost all SR-related studies focused on the parents of ASD children in Western nations. Therefore, it is necessary to clarify the potential association between SR and socially relevant factors for the parents of ASD children in China.

Because of their poor social skills and improper affective actions, ASD children are frequently regarded as impolite, disruptive and dangerous [8]. As such, their parents may generally experience perceived discrimination (PD) in some social contexts due to negative attitudes, inequitable judgment or unfair treatment from others [9, 10]. PD may threaten people's needs for acceptance, and thus lead to adverse psychological consequences [11]. In particular, previous studies have shown that PD could negatively influence subjective well-being and positively predict depressive symptoms of parents of ASD children [12–14]. However, it is still not clear about the relationship between PD and SR. Motivated by these results [13, 14], the current study aimed to test whether PD may be positively correlated with SR for parents of ASD children.

Parents of ASD children may often be accused for passing on defective genes to their children and producing bad breeds of offspring [14], or be condemned unfairly for their ineffective parenting and failing to discipline their children [15, 16]. These experiences may bring those parents a sense of insecurity or inferiority, and further lead to affiliate stigma (AS) [14] which refers to the internalization of negative evaluations and attitudes directed at themselves [17, 18]. Internalization of AS might cause negative psychological outcomes. In addition, a growing

number of studies have revealed the association between AS and negative emotions, low quality of life or social isolated behaviors [19–21]. As a motivation, the current study aimed to test whether AS could be considered as a mediator in the association between PD and SR.

Individuals, who are discriminated or stigmatized in their lives, tend to perceive themselves as incompetent and inferior to others [8, 17], experience a diminished sense of self-worth [22], feel ashamed or anxiety [19], doubt about their social skills [22], and thus engage in withdrawal behaviors to avoid socializing with others [23–25]. Hence, parents of ASD children may generally engage in social alienation (SA) which is a psychological and behavioral expression of self-estrangement and isolation [22]. Additionally, some studies have shown that: (i) PD and AS are predictive factors of SA [14, 26]; and (ii) SA was positively correlated with PD and AS [22, 27, 28]. On the other hand, social connection is a fundamental psychological need, and an unfulfilled urge for belonging, also referred to a “thwarted belongingness”, may result in suicidal desire [29]. Prior studies have shown that high level of SA is correlated with increased risk of suicide [26]; and social isolation is a significant predictor of suicidal thoughts or behaviors across the lifespan [29]. As a motivation, the current study aimed to test whether SA might play a mediating role in the association among PD, AS and SR.

Taken together, the current study sought to evaluate the SR rate and uncover the association among SR, PD, SA, and AS for parents of ASD children in China, even though both questions have been studied in Western nations. In particular, this study aimed to clarify whether: (i) AS and SA may play mediating roles in the association between SR and PD; and (ii) PD may be positively correlated with SR. For this purpose, 645 Chinese parents of ASD children were recruited, and were asked to complete a series of scales to evaluate SR, SA, AS, and PD, respectively. Our findings might bring some new insights into the understanding and intervention of the adverse psychological consequences of parents of ASD children in China.

Methods

Participants and procedures

The survey was conducted on clinical cases from March 2023 to October 2023 using paper questionnaire in the Department of Child Developmental Behavior, the Third Affiliated Hospital of Zhengzhou University. It was administered individually and took approximately 20 min to complete. All participating children's parents were informed of the purpose and guidance of the survey, and that the research was entirely anonymous and

voluntary. All participating children's parents gave their informed consent, and each participant gave their oral consent.

A total of 645 parents (including 117 males and 528 females) was recruited to complete this survey. Participating parents' ages ranged from 22 to 56 (mean = 33.85 years; SD = 5.41). Demographic information of the participants was showed in Table 1.

Measures

Suicidal behaviors questionnaire-revised (SBQ-R)

The SBQ-R was utilized to evaluate SR [30]. It consists of four items, each targeting different aspects of suicide: the first item is lifelong suicidal ideation or attempt; the second item is the frequency of suicidal ideation in the past year; the third item is the threat of suicidal behavior; and the fourth item is the likelihood of suicide. While the first three items are rated from 1 to 3, the fourth item is rated from 0 to 6. Hence, the total score ranges from 3 to 18 points. Participants may be categorized as high SR if their total scores are seven or above [30]. The SBQ-R has demonstrated excellent qualities [31, 32]. In our study, the Cronbach's alpha of the SBQ-R was 0.858.

Perceived discrimination scale for parents of children with Autism Spectrum disorders (PDS-FP)

Perceived discrimination of Chinese parents of ASD children was evaluated by the PDS-FP [33]. The PDS-FP consists of 10 items rated on a 4-Likert scale ranging from 1 (strongly disagree) to 4 (strongly agree). The total score ranges from 10 to 40. The higher the total score, the higher the PD level. This scale has shown excellent performance in Chinese samples [34]. The Cronbach's alpha was 0.928 in our study.

Affiliate Stigma Scale (ASS)

The ASS was developed to evaluate the extent of internalized stigma in parents of ASD children [17]. It is a 22-item scale rated on a 4-point scale from 1 (strongly disagree) to 4 (strongly agree). The total score ranges from 22 to 88. The higher the total score, the higher the AS level. This scale has shown good internal consistency [8]. The Cronbach's alpha of the AS was 0.964 in current study.

General Social Alienation Scale (GSAS)

The GSAS was utilized to test social alienation of parents of ASD children [35]. It consists of 15 items covering 4 factors: sense of alienation by others, sense of self alienation, sense of doubt, and sense of meaninglessness. Responses are rated on a 5-point scale (1 = strongly disagree; 5 = strongly agree). The total score ranges from 15 to 75. The higher the total score, the higher the SA level. The GSAS has demonstrated well validity and reliability [26]. Its Cronbach's alpha was 0.892 in current study.

Statistical analysis

All analyses were conducted using SPSS 21.0 and AMOS 23.0. The Spearman's correlations were computed to explore relations between variables. The mediating effects of AS and SA between PD and SR were tested using the PROCESS v3.5 (Model 6) with 5,000 bootstrapped samples [36]. AMOS 23.0 was used to perform the Structural Equation Model (SEM). The theoretical model is well fitted with the data when CMIN/DF < 2, GFI and CFI > 0.95, AGFI > 0.90, and RMSEA < 0.05 [37].

Results

Prevalence rates of suicidal risks

The SR rate of participating parents was displayed in Table 2. Findings showed that 34.6% of those parents had high SR, 49.8% had lifetime suicidal ideation or behavior, 11.9% had suicide plans, and 2.5% had suicide attempts. In addition, 44.3% of those parents reported

Table 1 Demographics of the participants

Variable	n	%
Sex of parents		
Male	117	18.1
Female	528	81.9
Education level of parents		
Primary	22	3.4
Junior middle	175	27.1
Senior middle	149	23.1
Specialty	157	24.3
Undergraduate	123	19.1
Postgraduate	11	1.7
Sex of autistic children		
Boy	498	77.2
Girl	139	21.6
Marital status of parents		
Married	625	96.9
Divorce	12	1.9
Annual household income		
less than ¥10,000	84	13.0
¥10,000 - ¥3,0000	118	18.3
¥30,000 - ¥80,000	218	33.8
¥80,000 - ¥150,000	143	22.2
¥150,000 - ¥300,000	45	7.0
More than ¥300,000	19	2.9

Table 2 The SR rate of participating parents ($n = 645$)

Items	%
Past Attempts:	
Have you ever thought about or attempted to kill yourself?	
Never.	50.2
It was just a brief passing thought.	35.3
I have a plan at least once to kill myself but not try to do it.	10.2
I have a plan at least once to kill myself and really wanted to die.	1.7
I have attempted to kill myself, but did not want to die.	0.9
I have attempted to kill myself, and really hoped to die.	1.6
Frequency:	
How often have you thought about killing yourself in the past year?	
Never.	55.7
Rarely (1 time).	21.0
Sometimes (2 times).	14.0
Often (3–4 times).	5.2
Very often (5 or more times).	4.1
Threat:	
Have you ever told someone that you were going to commit suicide, or that you might do it?	
No.	74.7
Yes, at one time, but did not really want to die.	11.9
Yes, at one time, and really wanted to do it.	6.4
Yes, more than once, but did not really want to die.	4.9
Yes, more than once, and really wanted to do it.	2.0
Likelihood:	
How likely is it that you will attempt suicide someday?	
Never.	56.1
No chance at all.	6.6
Rather unlikely.	20.2
Unlikely.	3.3
Likely.	10.4
Rather Likely.	2.8
Very likely.	0.6

having suicide ideation during the previous 12 months; 8.4% reported that they truly wanted to end their lives, and 25.3% of them informed others that they were going to do so; and 13.8% of participants said they were more inclined to commit suicide in the future.

Correlation

Findings using the Spearman's correlation analysis were illustrated in Table 3. It is clear from Table 3 that: (i) PD, AS, SA and SR were positively correlated with each other ($p's < 0.01$); (ii) Sex of parents was positively correlated with PD, AS and SA ($p's < 0.05$); (iii) Education level of parents was negatively correlated with AS ($p < 0.05$); (iv) Annual household income was negatively correlated with

Table 3 Correlations between variables ($n = 645$)

	PD	AS	SA	SR
PD	--			
AS	0.77**	--		
SA	0.76**	0.71**	--	
SR	0.39**	0.41**	0.47**	--
Sex of parents	0.09*	0.09*	0.12*	0.07
Age of parents	-0.00	0.07	0.00	0.03
Education level of parents	-0.05	-0.09*	-0.08	-0.06
Annual household income	-0.10*	-0.13**	-0.10*	-0.07
Age of children	0.20**	0.15**	0.14**	0.07
<i>M</i>	21.88	51.65	36.29	6.04
<i>SD</i>	6.70	13.04	6.96	3.14

PD Perceived discrimination, AS Affiliate stigma, SA Social alienation, SR Suicidal risk.

* $p < .05$, ** $p < .01$

PD, AS and SA ($p's < 0.05$); (v) Age of children was positively correlated with PD, AS and SA ($p's < 0.05$).

Direct and indirect effects

In order to test whether AS and SA may play mediating roles on the association between PD and SR, the multiple mediation analysis based on 5,000 bootstrap samples was conducted using PROCESS v3.5 (Model 6) after controlling the sex of parents, age of parents, education level of parents, annual household income and age of children. Table 4 summarized our results, and showed that the direct effect of PD on SR was nonsignificant ($p > .05$), but there were significant indirect effects of PD on SR through AS and SA ($p < .01$). This indicates that PD was able to predict SR through both the multiple mediating effect of AS and SA (the indirect effect of AS and SA was 0.099 and the ratio of indirect to total effect was 23.33%), as well as through SA (the indirect effect of SA was 0.188 and the ratio of indirect to total effect was 44.31%). However, the indirect effect of PD on SR through AS was not statistically significant ($p > .05$).

To further visualize the direct and indirect effects of PD on SR via AS and SA, a structural equation modeling was performed using AMOS 21.0. Figure 1 summarized our results, and showed the standardized path coefficients of the total model. It is clear that there is a good fit between the total model and the data (CMIN/DF = 1.948, CFI = 0.992, GFI = 0.980, AGFI = 0.950, RMSEA = 0.056).

Discussion

Since caring for autistic children with autism becomes challenging for parents, they may experience elevated level of stress and make much effort to cope with many troubles [3]. These challenges and stress may significantly

Table 4 Effects of perceived discrimination on suicidal risks via affiliate stigma and social alienation

Models	Dependent variable	Independent variable	β	SE	LL 95% CI	UL 95% CI	R^2	F
Model 1	AS	PD	0.78***	0.03	0.72	0.83	0.60	135.09***
Model 2	SA	PD	0.51***	0.04	0.42	0.59	0.64	133.81***
Model 3	SR	AS	0.34***	0.04	0.26	0.42	0.25	22.05***
		PD	0.10	0.07	-0.03	0.23		
		SA	0.37**	0.06	0.25	0.49		

PD Perceived discrimination, AS Affiliate stigma, SA Social alienation, SR Suicidal risk. β obtained from regression analysis, F obtained from ANOVA

** $p < .01$, *** $p < .001$

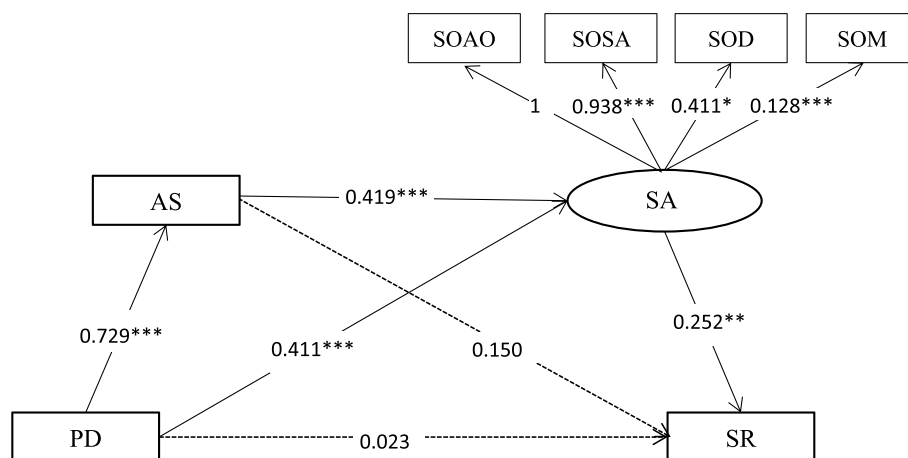


Fig. 1 The total model, with solid lines indicating significant effects (** $p < .01$, *** $p < .001$), dotted lines indicating insignificant effects ($p > .05$), and standardized regression coefficients (β) being shown on the arrows. Note. PD=perceived discrimination; AS=affiliate stigma; SA=social alienation; SR=suicidal risk; SOAO=sense of alienation by others; SOSA=sense of self alienation; SOD=sense of doubt; SOM=sense of meaninglessness

affected parental mental health and increase the risk of experiencing mental health issues like anxiety, depression, and other distress, which are strong predictors of suicidality [2, 5]. Previous studies focused on SR among parents of ASD children in Western nations, but little is known about it in China and how it relates to PD, AS, and SA. In addition, the influence of socio-demographic factors on those parents' stress and mental health have not been fully investigated [17, 38]. This study recruited Chinese parents of ASD children to explore the SR prevalence rate, clarify the mediating effects of AS and SA in the association between PD and SR, and reveal the influence of socio-demographic factors on those parents' psychological states. Some interesting results has been obtained in the current study.

First of all, findings showed that the prevalence rate of high SR for Chinese parents of ASD children was 34.6%, implying that more than one third of those parents had high SR [4]. As far as we know, this is the first time to report the rate of SR among parents of ASD children in

China. In addition, this study found that: (i) 49.8% parents reported suicidal ideation in the last one year; (ii) the rate of suicide plans, suicide attempts, and suicide likelihood were 11.9%, 2.5% and 13.8%, respectively. These findings expanded results on mental health of parents of ASD children [4, 5].

Secondly, the current study investigated the association between the demographic characteristics and psychological states (including PD, AS, SA and SR). Main results were listed as follows.

- (i) Sex of parents was positively correlated to PD, AS and SA. This indicates that mothers of ASD children are more likely to perceive discrimination from the outside world, internalize stigmas and engage in withdrawal behaviors to avoid socializing with others; and mothers tend to experience more stigma and other unfair treatment than fathers because historically, there is a natural tendency to blame them for the mis-behaviour of their children, even caused by their spouses [16].

- (ii) Education level of parents was negatively correlated to AS. This implies that less educated parents are more susceptible to internalize negative evaluations and attitudes directed at themselves.
- (iii) Annual household income was negatively correlated with PD, AS and SA. This means that good family economic condition is a protective factor for mental health of parents of autistic children; and families with lower income may experience more negative experiences [16].
- (iv) Age of children was positively correlated with PD, AS and SA of parents. This is consistent with prior research in which parents of older children reported a higher level of stress than those of younger children [39, 40].

Thirdly, this study revealed the association between PD and SR, which might be mediated by other factors. In particular, this study showed that Chinese parents of ASD children may feel higher discrimination, and thus increase the possibilities of suicide thoughts or behaviors. This is consistent with results for their counterparts in Western nations [6, 7].

Fourthly, as far as we know, this study is the first to shed light on the effects of PD on SR via AS and SA. As expected, our study showed that AS and SA had significant mediating effects on the association between PD and SR. Main results were listed as follows.

- (i) PD could predict SR through the indirect effect of SA. This implies that discrimination experiences may lead to parents of ASD children to feel ashamed or anxious and perceive themselves as incompetent and inferior to others [8, 17, 19]. Being discriminated might decrease parents' sense of self-worth and self-efficacy in social interaction. As a result, parents may engage in withdrawal behaviors to avoid socializing with others [23–25]. However, being isolated with social environment brings about the risk of suicidality. In line with previous research, SA was associated with increased risk of suicide [26], and could cause suicide-related thoughts or behaviors across the lifespan [29]. This is consistent with the Interpersonal Theory of Suicide that social connectedness is a fundamental human psychological need, while thwarted belongingness could cause suicidal desire [29].
- (ii) Findings provide a clear evidence that PD could predict SR via the multiple mediating effect of AS and SA. Due to their parental status, parents of ASD children might internalize social stereotype evaluations and negative attitudes from others into their own value systems [17, 18]. Since stigma is the detrimental cognitive consequences of discrimina-

tion [14], previous studies suggested that AS is relatively more prevalent in Asian background because of the collectivist cultures [41]. For instance, a prior study pointed out that there was particularly salient associations between AS and psychological problems among Chinese parents of ASD children [21]. Under the influence of the cultural value on social face, Chinese parents may desire to maintain their social image and reputation [42]. However, when this need is thwarted, it could cause negative psychological outcomes. Indeed, previous studies have noted that Chinese parents of ASD children are more impressionable to discrimination and stigma and are more susceptible to mental health problems [21]. Our results expanded the field of existing research by demonstrating that discrimination could increase SR of Chinese parents of ASD children through the mediating effects of stigma and social isolated behaviors.

Limitations

Although our study may bring some new insights into the understanding about SR and its relevant factors for Chinese parents of ASD children, there are some limitations. First of all, this study didn't explore the SR difference between parents of ASD children and those of other children. Future studies will compare SR in parents of ASD children with those of typically developing children, or those of other disabled children with neurodevelopmental disorders. This comparison might enable us to clarify how high SR is for parents of ASD children. Secondly, this study didn't evaluate any comorbid distress such as depression and anxiety, which are also strong predictors of suicide. Future research will evaluate and control these comorbidities to elucidate focal associations. Thirdly, this study did not consider the influence of the symptom severity and rehabilitation effect of ASD children, which may be related to their parents' psychological status. Future research will control for the effects of these accompanying variables. Fourthly, this study recruited more mothers to participate, and led to the disparity in the number of fathers and mothers. This is also a limitation. Future research will consider the influence of sex of parents as a covariate. Lastly, there might exist responses bias due to social desirability evaluated using scales (e.g., Suicidal Behaviors Questionnaire-Revised, and Affiliate Stigma Scale). Future research will focus on decreasing this bias.

Implications

Despite the limitations, this study has several theoretical and practical implications. Firstly, this study identified

PD as a risk factor for SR. This supports the widespread intrapersonal and interpersonal damages of discrimination experiences on parents of ASD children [15]. Hence, there is an urgent need to educate the public on understanding, awareness, and elimination of discrimination, in order to reduce the negative impact of discrimination for those parents. Secondly, our findings provided new evidence to clarify how AS and SA played effects in the association between discrimination experiences and suicide thoughts or behaviours. This supports the mediating roles of AS and SA on the association between PD and SR. Hence, prevention and intervention of suicidality for parents of ASD children may benefit from overcoming internalization of stigma, reducing its detrimental effects, and cultivating adaptive social skills [8, 16].

Conclusions

In conclusion, the current study investigated SR of Chinese parents of ASD children and its correlations with PD, AS, and SA. This study found that 34.6% of Chinese parents of ASD children had high SR, and confirmed the positive correlation between PD and SR. Furthermore, this study showed that AS and SA may mediate the relationship between PD and SR. Therefore, prevention and intervention of suicidality for parents of ASD children may benefit from reducing the harmful effects of stigma and prejudice and fostering the development of adaptive social skills.

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Authors' contributions

W.W. contributed to the acquisition, analysis, interpretation of data, and writing of the paper. Y.Y. and S.C. did a lot of work in data collecting. L.Q. and M.R. contributed to the revision of the paper. Y.D. made substantial contributions to the design of the work. All the authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of work are appropriately investigated and resolved.

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Data availability

Data Availability The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Declarations

Ethics approval and consent to participate

The Medical Ethics Committee of the Third Affiliated Hospital of Zhengzhou University gave its approval (No. 2023-[Pre]-132) to all study protocols and research techniques, ensuring that they adhered to the World Medical Association's Declaration of Helsinki regarding the use of humans in testing. All participating children's parents were informed of the purpose and guidance

of the survey, and that the research was entirely anonymous and voluntary. All participating children's parents gave their informed consent, and each participant gave their oral consent.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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