ORIGINAL RESEARCH

The Impact of Early Psychological Intervention Under Hospital-led HIV/AIDS Case Management on Patients' Well-being

Lina Zhao, BD; Kun Zhang, BD; Zijian Fan, BD; Yuntao Geng, BD; Limin Wang, BD; Yanan Zhang, BD

ABSTRACT

Objective • To explore the influence of early psychological intervention on AIDS patients receiving hospital-led case management.

Methods • Between December 2022 and May 2023, 100 cases of AIDS patients were gathered at the Fifth Hospital of Shijiazhuang. They were randomly assigned to either a psychological intervention group or a conventional intervention group. Each group consists of 50 individuals affected by AIDS. The conventional intervention group received care through traditional care models. In contrast, the psychological intervention group received immediate psychological support upon being screened positive for HIV antibodies, in addition to the conventional intervention group. The intervention period for both groups lasted 3 months, during which medication adherence, adverse emotional conditions, self-management skills, and quality of life were compared.

Results • During the intervention period, the psychological intervention group exhibited higher medication adherence than the conventional intervention group. Post-intervention, the levels of anxiety as assessed by the SAS and the degree of depression as evaluated by the SDS of the conventional intervention group were higher than those of the psychological intervention group. Additionally, the psychological intervention group demonstrated higher scores in 7 dimensions the total score on the self-management ability scale, and a higher score in the WHOQOL-HIV-BREF compared to the conventional intervention group.

Conclusion • In the context of hospital-led case management for AIDS, early psychological intervention in patients has been shown to enhance medication adherence, reduce negative emotions, improve self-management skills, and enhance overall quality of life. (*Altern Ther Health Med.* [E-pub ahead of print.])

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INTRODUCTION

AIDS, an affliction transmitted via bodily fluids, stands among the multitude of diseases that tragically claim lives across the globe,[1] has resulted in the fatalities of approximately 36 million individuals globally since its discovery.[2] Despite effective interventions in AIDS prevention and treatment, the incidence of AIDS in the Asia-Pacific region has not witnessed a significant decline.[3] Although the administration of antiretroviral therapy (ART) has significantly prolonged the life expectancy of AIDS patients and decelerated the disease's progression,[4] research suggests that the AIDS epidemic is unlikely to cease before 2030, particularly in low- and middle-income nations.[5]

AIDS not only inflicts severe physical anguish upon patients but also subjects them to profound psychological distress,[6] primarily associated with the enduring stigma surrounding AIDS.[7] Numerous studies have demonstrated that more than half of AIDS patients grapple with psychological afflictions, including depression, anxiety, and stress,[8] hampering their ability to access timely and optimal treatment, as well as impeding their quality of life enhancement.[9] Furthermore, the emergence of psychological issues elevates the risk of mental health disorders and subsequent thoughts and attempts of suicide among AIDS patients,[10] underscoring the urgent need for prompt psychological intervention for these individuals.[11]

Case management stands as a strategy aimed at enhancing the accessibility and provision of care services, with a focus on eliminating systemic and individual barriers to treatment.[12] Research indicates that case management programs can contribute to improved health outcomes for AIDS patients and provide support for their fundamental care needs.[13] Previously, the case management of AIDS patients in China was overseen by the Centers for Disease

Control and Prevention (CDC).[14] However, the current landscape witnesses the transfer of AIDS patient case management services from the CDC to hospitals and Community Health Service Centers (CHSC) in China[15], enabling patients to receive AIDS testing and treatment in a more expedient manner[16] and setting the stage for early psychological intervention for AIDS patients.

Thus, the objective of this study is to examine the impact of early psychological intervention on AIDS patients under hospital-led AIDS case management.

DATA AND METHODS

General Information of Patients

During the period from December 2022 to May 2023, a cohort of 100 individuals affected by AIDS was assembled at the Fifth Hospital of Shijiazhuang City for investigative purposes. The individuals were designated with random numbers and grouped into two categories: 50 individuals for the psychological intervention cluster and 50 individuals for the conventional intervention group, based on odd and even numbers. The inclusion criteria encompassed the following conditions: confirmation of AIDS diagnosis through HIV nucleic acid testing, CD4+T lymphocyte testing, HIV-1/2 antibody testing, and genotype resistance testing; aged 18 years or older; voluntary participation with comprehensive understanding and consent; clear consciousness; absence of a history of mental disorders. Conversely, the exclusion criteria comprised the subsequent conditions: family background of mental disorders or severe mental illness; cognitive or intellectual impairments; presence of other autoimmune diseases; incomplete clinical data; impediments to communication; reluctance to participate in the study; severe organ dysfunction. This study has been sanctioned by the Medical Ethics Review Committee of the Fifth Hospital of Shijiazhuang City, and all participants were duly informed and expressed their consent by signing the pertinent informed consent document.

Intervention Methods

All patients are provided with hospital-led AIDS case management at the Shijiazhuang Fifth Hospital. This includes initial screening for HIV antibody positivity followed by blood sample testing for confirmation, viral load testing, and CD4 cell testing. Within 4 weeks of screening, patients receive testing consultation, confirmation, CD4 and viral load testing, ART eligibility screening and consultation, and initiation of ART treatment. The conventional intervention group follows a conventional care model, offering HIV-related knowledge, emphasizing the necessity of treatment, and providing detailed treatment plans while addressing medication adherence and healthy lifestyle maintenance. Patients are advised to protect those around them and are offered consolation to enhance their confidence. The psychological intervention group offers psychological intervention built on the conventional intervention carried out by qualified nursing personnel who undergo training in psychological therapy. Strict implementation of rules and regulations is ensured, with nursing staff informing patients about maintaining good psychological well-being.

1) Communication and exchanges: Establishing good nurse-patient communication by finding common topics according to the patient's interests and increasing the patient's trust and respect for privacy. Understanding the patient's personality and preferences is crucial, and indirect communication methods are used for patients unwilling to engage.

2) Psychological intervention: Understanding the patient's emotional state, providing targeted psychological counseling, attention diversion, and cognitive correction intervention. Attention diversion and cognitive correction intervention are combined to shift the patient's focus and relieve short-term anxiety. For patients with anxiety or depression symptoms, corresponding therapy and activities are provided to alleviate negative emotions.

3) Health education and medication guidance: Real-time tailored health education and promotion activities help patients understand specific treatment measures and advanced medical technology, relieving psychological tension and enhancing medication compliance.

The intervention period for all patients is 3 months, with nursing intervention every two weeks, lasting 30 minutes each.

Observation Indicators

Medication Adherence: After engaging in psychological interventions with patients for 3 months, an evaluation of adherence to antiretroviral therapy (ART) is carried out using the HIV/AIDS patient medication adherence questionnaire. This comprehensive assessment encompasses seven key dimensions: consistent attendance at medical appointments, adherence to medical guidance, appropriate nutrition, safe sexual practices, healthy sleep patterns, abstaining from psychoactive substances, and nurturing positive emotional states. Adherence is deemed to be achieved if compliance with 3 or more of these dimensions is noted and not executed if compliance is observed with 2 or fewer dimensions. After this, a detailed statistical analysis is performed on the medication adherence of the cohort under study.

Negative Emotions: Before and following three months, psychological interventions were implemented with the patient, aiming to evaluate the presence of adverse emotional states. The Self-Rating Depression Scale (SDS) and the Self-Rating Anxiety Scale (SAS) were utilized for this purpose. It is important to note that both the SDS and SAS employ a scoring system ranging from 0 to 100, with higher scores indicating a greater intensity of negative emotions experienced by the patient.

Self-management Abilities: After undergoing psychological intervention, the self-management capabilities of both patient groups were evaluated using the HIV/AIDS Patient Self-Management Abilities Scale, both before and three months following the intervention. This scale encompasses seven dimensions, comprising a total of 49 items. These dimensions include life management, adherence to behavioral norms, knowledge regarding the disease, symptom management, seeking social support and assistance, managing treatment adherence, and the psychological aspects of coping with the disease. Each item is assessed on a 4-point Likert scale, with

Table 1. Comparison of General Patient Information

Category	Male/ Female	Age (Years)	Marital Status		
			Married	Unmarried	Divorced
Psychological intervention group (n=50)	28/22	42.24±8.58	35(70)	11(22)	4(8)
Conventional intervention group (n=50)	25/25	41.28±8.41	34(68)	13(26)	3(6)
t/χ^2	0.36	0.57	0.65		
P value	.55	.57	.72		

Note: The data is displayed as n (%).

scores ranging from 0 to 3. A higher score on the scale indicates a greater degree of self-management ability in patients.

Quality of Life: After undergoing psychological interventions, both groups of patients were assessed using the World Health Organization Quality of Life for HIV patients (WHOQOL-HIV-BREF) scale before and 3 months later. This scale measures six dimensions: physical, psychological, independence, social relationships, environment, and spiritual support/personal beliefs, encompassing 31 items. The scale utilizes a 5-level Likert scoring system, resulting in a total score between 24 and 120. A higher score signifies an enhanced quality of life for the patients.

Statistical Analysis

Employ the statistical software SPSS version 25.0 and GraphPad Prism version 9.0 to conduct statistical analysis on the data at hand. Average ($\bar{x} \pm s$) values are employed to represent continuous variables, while *t* tests are utilized to assess comparisons between different groups. Categorical variables are expressed as n (%), with χ^2 tests used to evaluate between-group comparisons. A significance level of $P < .05$ denotes the presence of statistically significant differences.

RESULTS

Comparison of General Patient Characteristics

In this study, the psychological intervention group consisted of 28 males and 22 females, whereas the conventional intervention group consisted of 25 males and 22 females. There were no discernible disparities in gender composition between the two groups ($P = .55$). As for age, the mean age of patients in the psychological intervention group was (42.24±8.58) years, while that in the conventional intervention group was (41.28±8.41) years. There were no statistically notable discrepancies in age between the two groups ($P = .57$) either. With respect to marital status, amongst the patients in the psychological intervention group, 35 were married, 11 were unmarried, and 4 were divorced. In the conventional intervention group, 34 were married, 13 were unmarried, and 3 were divorced. There were no statistically significant variances in marital status between the two groups ($P = .72$). (Table 1, Figure 1)

Comparison of Medication Adherence among Patients

After conducting a thorough analysis, it was determined that the rate of adherence to medication in the group receiving psychological intervention stood at an impressive 84%, while the conventional intervention group only managed a modest 64%. Furthermore, it should be noted that the psychological intervention group demonstrated a significantly superior level of medication compliance compared to the conventional intervention group ($P < .001$). (Table 2, Figure 2)

Figure 1. The male patients in the psychological intervention group outnumber the female patients, while the number of male and female patients in the conventional intervention group is equal, but there is no statistically significant difference in gender between the two groups. The age of patients in both groups also shows no statistically significant difference. Both groups predominantly consist of married individuals, and there is no statistical difference in marital status between the two groups. The patients in the psychological intervention group and the conventional intervention group demonstrate higher medication adherence, however, the conventional intervention group has a higher proportion of non-adherent patients compared to the psychological intervention group.

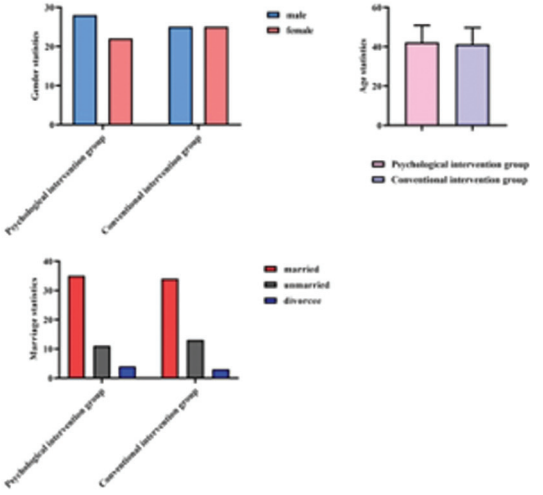


Table 2. Comparison of Patient Medication Adherence

Category	Compliant(%)	Non-compliant(%)
Psychological intervention group (n=50)	42(84)	8(16)
Conventional intervention group (n=50)	32(64)	18(36)
χ^2	5.20	
P value	.02	

Note: The data is displayed as n(%).

Figure 2. The patients in the psychological intervention group and the conventional intervention group demonstrate higher medication adherence, however, the conventional intervention group has a higher proportion of non-adherent patients compared to the psychological intervention group.

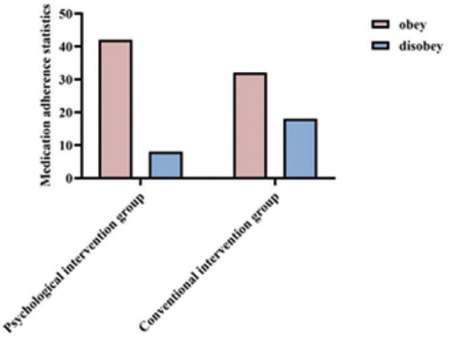


Table 3. Comparison of Patient Negative Emotions

Category	SAS(Scores)		SDS(Scores)	
	Intervention before	Intervention after	Intervention before	Intervention after
Psychological intervention group (n=50)	76.34±5.29	52.61±3.18[a]	73.59±5.32	51.26±3.17[a]
Conventional intervention group (n=50)	75.34±5.37	65.58±3.74[a]	74.27±5.21	64.14±3.82[a]
t	0.94	18.68	0.65	18.35
P value	.35	<.05	.52	<.05

Note: The data are shown as ($\bar{x} \pm s$), Before intervention, [a]$P < .05$.

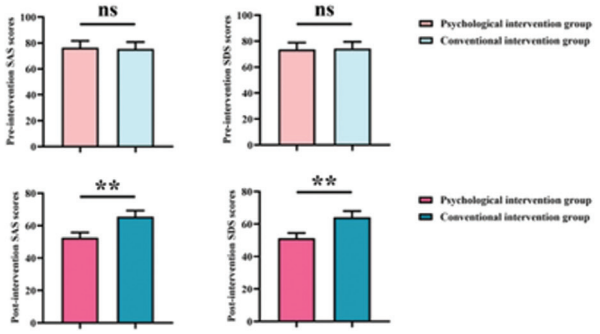
Table 4. Comparison of Patient Self-Management Abilities

Category	Daily life management		behavior norms in life		disease knowledge management		treatment adherence management	
	Intervention before	Intervention after	Intervention before	Intervention after	Intervention before	Intervention after	Intervention before	Intervention after
Psychological intervention group (n=50)	15.22±2.31	21.10±3.37[a]	8.23±0.33	16.56±1.68[a]	5.08±0.47	9.77±1.14[a]	15.19±1.95	22.16±3.24[a]
Conventional intervention group (n=50)	15.14±2.23	17.84±2.89[a]	8.18±0.30	12.97±1.34[a]	5.02±0.39	6.87±0.91[a]	15.03±1.82	18.95±2.88[a]
t	0.18	5.19	0.79	11.81	0.69	14.06	0.42	5.24
P value	.86	<.05	.43	<.05	.49	<.05	.67	<.05

Category	symptom management		emotional cognition management		seeking social support and assistance		total score	
	Intervention before	Intervention after	Intervention before	Intervention after	Intervention before	Intervention after	Intervention before	Intervention after
Psychological intervention group (n=50)	16.11±2.06	24.07±3.73[a]	11.85±0.76	16.41±0.86[a]	16.18±0.57	21.49±1.06[a]	87.85±3.57	131.55±6.24[a]
Conventional intervention group (n=50)	16.17±1.87	20.02±2.71[a]	11.73±0.54	13.21±0.97[a]	16.08±0.62	18.29±1.24[a]	87.33±3.71	108.14±4.61[a]
t	0.15	6.21	0.91	17.45	0.84	13.87	0.71	21.32
P value	.88	<.05	.37	<.05	.40	<.05	.48	<.05

Note: The data are shown as ($\bar{x} \pm s$),Before intervention, [a]$P < .05$.

Figure 3. Before the intervention, there is no statistically significant difference in SAS and SDS scores between the psychological intervention group and the conventional intervention group. After the intervention, the SAS and SDS scores of the psychological intervention group are lower than those of the conventional intervention group, and there is a statistically significant difference.



Comparison of Negative Emotions among Patients

After a comparison, it was found that the initial SAS scores for patients in the psychological intervention group were recorded as (76.34±5.29), while their SDS scores were (73.59±5.32). On the other hand, the conventional intervention group exhibited SAS scores of (75.34±5.37) and SDS scores of (74.27±5.21). No significant statistical disparities were observed in the SDS or SAS scores between the two groups (SAS:$P = .35$; SDS: $P = .65$).

Following a period of three months of psychological intervention, the SAS scores of the patients in the psychological intervention group notably decreased to (52.61±3.18), and their SDS scores lowered to (51.26±3.17). In contrast, the SAS scores of patients receiving the conventional intervention group were (65.58±3.74), while their SDS scores were (64.14±3.82). Both groups experienced a decline in their SDS and SAS scores, although the psychological intervention group exhibited significantly lower scores than the conventional intervention group (SAS:$P < .001$; SDS: $P < .001$). (Table 3, Figure 3)

Comparison of Patients' Self-management Abilities

Upon comparison, the pre-psychological intervention total scores for self-management abilities in the intervention group patients were recorded (87.85±3.57), while the total scores for self-management abilities in the conventional intervention group patients were (87.33±3.71). No statistically significant difference in the scores of self-management abilities and total scores between the two groups was observed ($P = .48$).

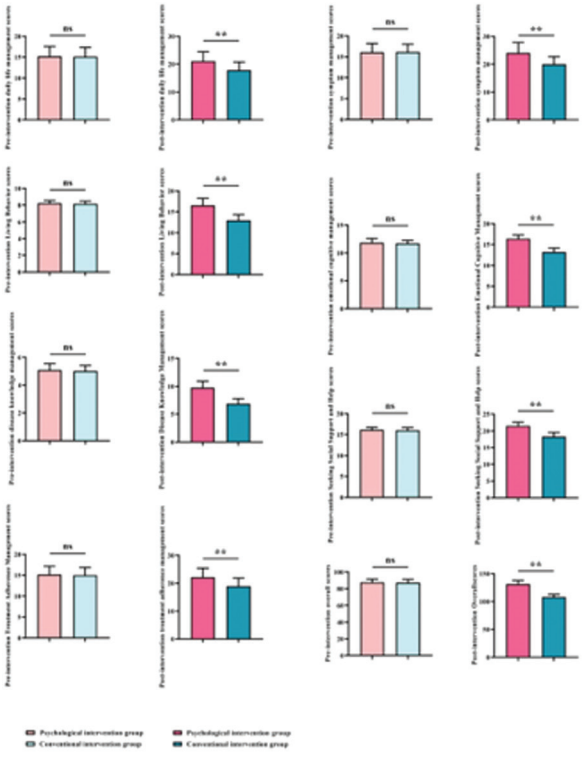
Three months after the psychological intervention, the total scores for self-management abilities of the psychological intervention group patients increased to (131.55±6.24), whereas the total scores for self-management abilities of the conventional intervention group patients were (108.14±4.61). Both groups exhibited improvement in various self-management abilities and total scores. Still, the psychological intervention group displayed significantly higher scores in all aspects of self-management abilities and total scores than the conventional intervention group ($P < .001$). (Table 4, Figure 4)

Comparison of Patients' Quality of Life

In comparing the scores, it was observed that before the implementation of psychological intervention, the patients in the psychological intervention group received scores of (67.63±1.80) on the WHOQOL-HIV-BREF scale. In contrast, the patients in the conventional intervention group received scores of (67.55±1.91). It was determined that there was no statistically significant disparity in the WHOQOL-HIV-BREF scores ($P = .83$).

Following 3 months of psychological intervention, the patients in the psychological intervention group saw an increase in their WHOQOL-HIV-BREF scores to (92.58±1.54) points. In contrast, the patients in the conventional intervention group experienced a rise to

Figure 4. Prior to the intervention, there is no statistically significant difference in the dimensions of the patients' self-management ability scale (including daily life management, adherence to lifestyle guidelines, disease knowledge management, treatment adherence management, symptom management, emotional cognition management, seeking social support and help) and the total score between the psychological intervention group and the conventional intervention group. Following the intervention, the patients in the psychological intervention group show higher scores in all dimensions of the self-management ability scale (including daily life management, adherence to lifestyle guidelines, disease knowledge management, treatment adherence management, symptom management, emotional cognition management, seeking social support and help) as well as the total score compared to the conventional intervention group, and there is a statistically significant difference.

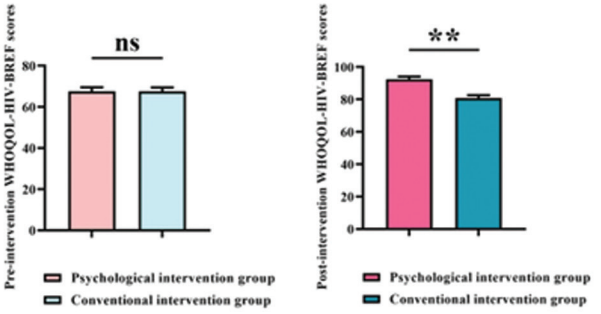


(80.91±1.72) points. Both groups displayed enhancement in the WHOQOL-HIV-BREF scores, with the psychological intervention group exhibiting superior scores compared to the conventional intervention group ($P < .001$). (Table 5, Figure 5)

Table 5. Comparison of Patient Quality of Life

Category	Intervention before	Intervention after
Psychological intervention group (n=50)	67.63±1.80	92.58±1.54
Conventional intervention group (n=50)	67.55±1.91	80.91±1.72
t	0.22	35.74
P value	.83	<.05

Figure 5. Before the intervention, there is no statistically significant difference in the WHOQOL-HIV-BREF scores between the psychological intervention group and the conventional intervention group. After the intervention, the patients in the psychological intervention group have higher WHOQOL-HIV-BREF scores than those in the conventional intervention group, and there is a statistically significant difference.



DISCUSSION

Mental health holds universal significance for humanity, particularly for AIDS patients.[17] However, AIDS patients are twice as likely to experience severe depression and eight times more likely to suffer from severe mental disorders such as bipolar disorder or schizophrenia.[18] The presence of these mental illnesses not only contributes to the spread of the HIV but also leads to decreased ART adherence, substance abuse, and increased risk behavior, ultimately resulting in poor physical health and reduced quality of life for patients.[19,20,21]

This study, through the integration of hospital-led case management for AIDS patients and early psychological intervention, revealed that AIDS patients who received psychological intervention upon initial screening for HIV antibodies demonstrated higher medication adherence when compared to those who received psychological intervention only after diagnosis. This finding suggests that early psychological intervention within hospital-led case management significantly enhances treatment adherence among ART-treated AIDS patients. Additionally, patients experienced decreased negative emotions, indicating a more profound impact of early psychological intervention within hospital-led case management on alleviating negative emotions among AIDS patients. Furthermore, patients demonstrated improved self-management abilities and a higher quality of life, signifying the substantial role of early psychological intervention within hospital-led case management in reducing high-risk behaviors, enhancing self-management capabilities, and improving the quality of life for AIDS patients.

China plays a significant role in the global fight against AIDS and has made substantial strides in AIDS prevention and control.[22] In 2003, the Chinese government declared that AIDS patients could access free testing, education, ART treatment, and financial assistance.[23] However, ART adherence in China has continuously fallen short of the 90% treatment coverage with sustained viral suppression

advocated by the Joint United Nations Program on HIV/AIDS (UNAIDS) in 2014.[24] The psychological burden experienced by patients during treatment and the intricate treatment pathway from initial HIV screening to commencing antiretroviral therapy in China have both contributed to lower ART adherence among patients.[25,26]

Case management is considered a standard practice to address the complex medical challenges and needs related to ART adherence.[26] Presently, the transfer of AIDS patient case management to hospitals in China has allowed patients to initiate ART treatment earlier and maintain better treatment adherence and overall health.[27] Additionally, there is growing evidence that psychological intervention can enhance the mental health of AIDS patients.[28] Healthy psychological states not only contribute to improved ART treatment adherence but also decrease the likelihood of high-risk behaviors and HIV transmission opportunities among AIDS patients.[29,30] These outcomes align with the results of this study, where early psychological intervention resulted in improved medication adherence, emotional control, self-management abilities, and overall quality of life for AIDS patients.

While this study has yielded specific results through early psychological intervention for AIDS patients, there are limitations. The sample size was small, and the study was confined to a single hospital, raising considerations about the applicability of the findings to other regions or on a larger scale. Furthermore, some of the study's outcomes relied on patient descriptions, potentially resulting in inaccurate responses during the intervention period. Hence, the constraints of this study necessitate further exploration in subsequent research endeavors.

In conclusion, early psychological intervention for AIDS patients within hospital-led case management contributes to improved medication adherence, reduced negative emotions, and enhanced self-management abilities, ultimately enhancing the overall quality of life.

DECLARATION OF COMPETING INTEREST

The authors declare that the research was conducted without any competing financial interests or personal relationships that could be construed as a potential conflict of interest.

AUTHOR CONTRIBUTION

Lina Zhao and Kun Zhang contributed equally to the work.

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