The positive significance of government-organized nationwide sports events in the post-epidemic era: The impact on citizens' psychological well-being, mindfulness level, and social avoidance distress

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Abstract

Based on the nationwide sports event "Health Walk" held in Ji'an City, we divided the subjects into sports participation group and non-sports participation group to investigate the differences between the two groups in social avoidance and distress, psychological well-being, and mindfulness level. We also examined the mediating role of mindfulness and social avoidance and distress in whether to participate in sports activities and psychological well-being. In addition, we investigated citizens' approval of the government and their city, and collected basic information about the subjects. We used a 2 (sports participation, non-sports participation) * 2 (high social avoidance and distress, low social avoidance and distress) * 2 (high mindfulness level, low mindfulness level) mixed design. We measured the subjects using Watson's Social Avoidance and Distress Scale, the short version of Ryff's Psychological Well-Being Questionnaire, the Chinese Short Version of the Five-Dimensional Mindfulness Scale, and general survey questionnaires. SPSS 27.0 and the PROCESS plug-in were used to process and analyze the data through descriptive statistics, independent sample t-tests, correlation analysis and mediation effect tests. The results showed that there were significant differences in social avoidance, distress, and mindfulness levels in whether to participate in sports activities (*ps* <0.001). Whether to participate in sports activities and psychological well-being were significantly correlated with mindfulness (t = 0.368, p <0.001; t = 0.250, p <0.01), and were significantly correlated with social avoidance and distress (t = -0.307, p <0.001; t = -0.443, p <0.001). Mindfulness and social avoidance fully mediated the influence of sports participation on psychological well-being (*ps* <0.001).

Government nationwide sports events can effectively improve citizens' psychological well-being by increasing participants' mindfulness levels and reducing social avoidance and distress. At the same time, it has positive effects on citizens' approval of government agencies and improvement of physical and mental health, which is conducive to social development. We should encourage relevant departments and organizations in various cities to carry out similar nationwide and group sports activities in an orderly manner to promote people's physical and mental health and accelerate the recovery and development of social relations in the post-epidemic era.

Keywords: Psychological Well-being; Mindfulness; Social Avoidance; Social Distress; Sports activities; Post-epidemic Era

1. Intronduction

Physical exercise has significant impacts on people's physical and mental health (Yuan, Liwei, & Zhixiong, 2018; Zeng, 2007). After China's epidemic prevention policies were relaxed for a period of time, the peak of nationwide infections gradually subsided. People's work and life gradually returned to normal. However, under the long-term blockade policies, many people got used to staying at home. After experiencing infections, people's physical fitness has greatly declined. People's health and safety are not only personal matters but also concerns of the government. Under the influence of a series of national policies such as the "National Fitness Program Outline", the Ji'an Municipal Government organized the 2023 Ji'an Municipal National Fitness Series Event "Yalu River Health Walk" to improve the physical fitness of citizens in Ji'an and strengthen exercise requirements.

The positive effects of sports activities have always been the main focus of scholars' research. Existing research has confirmed that sports activities can directly or indirectly negatively predict social anxiety, that is, sports activities can reduce anxiety levels (Zhang, Jin, & Zhou, 2023). It can also reduce stress levels (Szmodis et al., 2022), effectively improve trait mindfulness levels, promote the development of physical self-esteem, and increase life satisfaction (Guo, 2023). This study will

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also Guo study the positive significance of sports activities, explore the effects of sports activities on mindfulness, social avoidance and distress, and psychological well-being, as well as the effects of mindfulness and social avoidance and distress on psychological well-being. Investigate whether the impact of sports activities on psychological well-being is achieved through mindfulness and social avoidance and distress, and construct its influence mechanism.

This study can provide theoretical support for whether government and community organizations or sponsors should hold large-scale sports events under the background of Chinese epidemic opening. At the same time, it can provide suggestions for domestic and foreign companies, institutions and other organizations on whether team building of sports type can be considered. It also provides an explanation for families and individuals to actively participate in sports activities.

2. Literature Review

Psychological well-being (PWB) was proposed by Ryff (1989). He argued that individual well-being is not just a subjective emotional experience of happiness but requires full development of one's potential to achieve excellence. This concept comes from Aristotle's "Eudaemonism", which emphasizes the core support of personal development and social contribution to well-being, focusing on functional behavior (Keyes, Shmotkin, & Ryff, 2002). This concept belongs to a multi-dimensional framework that effectively integrates multi-field concepts related to well-being, including six dimensions: self-acceptance, personal growth, purpose in life, positive relationships, environmental mastery, and autonomy. Its measurement scale is an important tool for evaluating the effects of interventions such as Mindfulness-based Stress Reduction (MBSR) (van Dierendonck & Lam, 2022).

Social avoidance and distress refer to the tendency to avoid social interaction and distressing feelings in social situations. They are the behavioral performance and subjective feelings of people with social difficulties and social barriers. Avoidance is a behavioral performance, and distress is an emotional reaction. Studies have shown that the more life events, the more likely to produce social distress emotions and social avoidance behaviors (Huang, Zhang, & Huang, 2013). At the end of 2022 and the beginning of 2023 when there were many life events, people's social avoidance and distress can be predicted to be greater, which should be paid attention to. Studies have shown that aerobic exercise learning can effectively improve or enhance college students' physical image and effectively reduce college students' social avoidance and distress emotions, which plays a positive role in college students' mental health (Shi, 2012). Zhang and Liu (2017) adopted group-based, high-interest and moderate-intensity sports exercise programs for intervention in their research. The results found that these sports programs can continuously increase the interest of exercisers, achieve relaxation in mood, and effectively alleviate social avoidance and distress and social anxiety.

Mindfulness originates from Buddhist meditation culture more than two thousand years ago. After continuous evolution, Western scholars have secularized it with scientific concepts. Mindfulness refers to the awareness arising from intentional, non-judgmental attention to the present moment (Kabat-Zinn, 2003). It includes self-regulation of awareness and attitudes toward one's own experiences, achieving the effects of stabilizing emotions, improving concentration and psychological resilience. In recent years, research on mindfulness has become increasingly enriched, and its importance has continued to rise. Mindfulness has been proven to effectively reduce academic procrastination (Li et al., 2023), improve life satisfaction (Huan & Fang, 2023), and is an important predictor of well-being and satisfaction (Aldahadha, 2023). Mindfulness-based interventions can reduce depression and anxiety (Bhattacharya & Hofmann, 2023), improve sleep problems (Dandan, Qi, & Min, 2023), etc.

It is an important variable for us to test the positive effects of sports activities. By measuring the level of mindfulness and combining the stable research results in the past, we can predict the extended effects and effects of participating in sports activities.

Studies by Raimondi et al. (2022) have shown that the closure and restriction of sports activities have had a seriously negative impact on people's overall health. Based on previous scholars' research, this paper conducted an empirical survey and recruited subjects in Ji'an City to explore the impact of sports activities on the people of this city. This study selected three measurement variables: mindfulness level, psychological well-being, and social avoidance and distress, to examine whether participating in sports activities can improve people's mindfulness level and psychological well-being, and whether it can reduce people's social avoidance and distress, and explore their mechanisms of action to construct a multiple mediation model.

The hypothetical model diagram is shown in Figure 1.

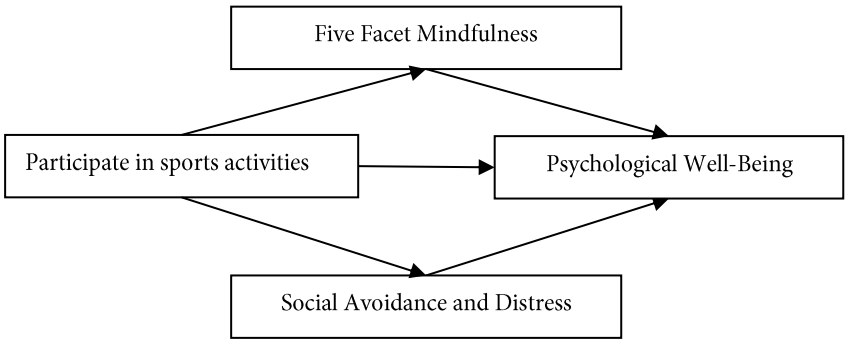

Figure 1. Hypothetical model of the influence of participating in sports activities on psychological well-being

Based on the research content, this study proposes the following hypotheses:

H1: Participation in sports activities is significantly positively correlated with mindfulness level and significantly negatively correlated with social avoidance and distress. Mindfulness and social avoidance and distress mediate the relationship between participation in sports activities and psychological well-being.

H2: Nationwide sports events organized by the government and other relevant units are positively correlated with public approval.

3. Methodology

3.1 Research methods

This study used experimental and questionnaire methods to conduct surveys. A 2 (participating in sports activities, not participating in sports activities) * 2 (high social avoidance and distress, low social avoidance and distress) * 2 (high mindfulness level, low mindfulness level) mixed design was adopted.

Subjects were recruited in Ji'an City. According to the subjects' own willingness to choose whether to participate in this sports activity, the voluntary participation rate was recorded. The subjects were divided into groups participating in sports activities and groups not participating in sports activities. The groups not participating in activities completed the questionnaire survey directly. The groups participating in activities completed the nationwide sports event "Health Walk" organized by the government together with other participants in this city. After the end, they completed filling out the questionnaire.

The questionnaires we used were the self-made basic demographic questionnaire, Watson's Social Avoidance and Distress Scale, the short version of Ryff's Psychological Well-Being Questionnaire, and the Chinese Short Version of the Five-Dimensional Mindfulness Scale. SPSS 27.0 was used to conduct descriptive statistics, independent sample t-tests, and stepwise regression mediation effect tests.

3.2 Questionnaire survey method

3.2.1 General Demographic Questionnaire

A self-compiled basic demographic survey on age, gender, place of origin, cultural level, etc. It also included surveys on the recognition of the municipal government, the recognition of the city, and self-evaluation of changes in health status.

3.2.2 Social Avoidance and Distress Scale (SADS)

This scale was compiled by Watson and Friend (1969) with 28 questions divided into two dimensions: social avoidance and social distress. There were 14 questions in each dimension. A "yes or no" scoring was used, with "yes" scored as 1 point and "no" unscored. The higher the score, the higher the social avoidance behavior. In this study, the internal consistency coefficient of the total scale was 0.911, indicating that the scale reliability was good.

3.2.3 Psychological Well-Being Scale (PWBS)

The Psychological Well-Being Scale used in this study was originally developed by Ryff (1989), revised by Cheng and Chan (2005), and finally translated into Chinese by Shen (2016). The short version of the Psychological Well-Being Scale has 24 items, including 6 dimensions: positive relations with others (PR), purpose in life (PL), personal growth (PG), environmental mastery (EM), self-acceptance (SA) and autonomy (AU). PR includes items 3, 5, 7, 19; PL includes items 4, 11, 18, 20; PG includes items 10, 14, 22, 23; EM includes items 1, 6, 8, 17; SA includes items 12, 13, 15, 24; AU includes items 2, 9, 16, 21. Of which, there are 11 reverse items (3, 5, 8, 9, 10, 11, 13, 19, 21, 23, 24). The internal consistency coefficient of the total scale in this study was 0.887.

3.2.4 Five Facet Mindfulness Questionnaire (FFMQ)

The Five Facet Mindfulness Questionnaire used in this study was developed by Baer et al. (2006) and revised by Hou et al. (2014) into a Chinese short version of the Five Facet Mindfulness Questionnaire (FFMQ) with 20 items and five dimensions (observe, describe, act awareness,

non-judge, non-react) with 4 items each. A 5-point Likert scale was used, with 1-5 representing "not at all" to "completely agree". The higher the total score of the scale, the higher the level of mindfulness. In this study, the internal consistency coefficient α was 0.905, indicating good reliability.

3.3 Subjects

A total of 140 subjects were recruited in Ji'an City, including 50 men (35.71%) and 90 women (64.29%). 116 (82.86%) were from cities and 24 (17.14%) were from rural areas. 29 (20.71%) were unmarried, 105 (75.00%) were married, and 6 (4.29%) were others. 66 (47.14%) were only children and 74 (52.86%) were non-only children. 18 (12.86%) were under 24 years old, 67 (47.86%) were 25-44 years old, 54 (38.57%) were 45-64 years old, and only 1 (0.71%) was over 65 years old. 10 (7.14%), 10 (7.14%) had junior and high school education, 108 (77.14%) had undergraduate education, 11 (7.86%) had master's education, and 1 (0.71%) had doctoral education. 46 (32.86%) had a monthly income below 5,000 yuan, and 94 (67.14%) had a monthly income above 5,000 yuan. 106 (75.71%) had never smoked, 12 (8.57%) had quit smoking, 8 (5.71%) occasionally drank, and 14 (1.00%) often drank. According to the subjects' own willingness to choose whether to participate in this nationwide sports event "Health Walk", the participants and non-participants were grouped. Questionnaires were distributed to the subjects after the event. 52 subjects participated in the activity and 88 did not participate. The voluntary participation rate was 37.143%.

4. Analysis of Results

Table 1

Analysis of differences in psychological well-being, mindfulness, and social avoidance and distress according to participation in activities, gender, place of origin, whether only children, cultural level, and smoking status (N = 140)

	N	Social avoidance and distress	Psychological well-being	Mindfulness
		M±SD	*M±SD*	*M±SD*
Participate in activities	52	8.154±7.897	120.692±18.407	68.250±9.628
No participate in activities	88	12.807±6.429	114.625±19.600	59.057±12.196
t		-3.602***	1.839	4.933***
Male	50	9.820±6.483	112.920±18.454	60.300±15.042
Female	90	11.778±7.718	119.078±19.545	63.678±10.044
t		-1.597	-1.852	-1.422
City	116	11.216±6.900	117.785±19.088	62.017±12.531
Rural	24	10.417±9.315	112.500±20.268	64.667±9.854
t		0.398	1.174	-1.140
Only children	66	10.439±7.545	117.364±19.756	63.500±14.420
Non-only children	74	11.649±7.151	116.446±19.055	61.554±9.639
t		-0.970	0.279	0.927
Below high school	10	12.200±7.421	100.900±15.445	61.300±11.116
High school and above	130	10.992±7.353	118.108±19.090	62.562±12.233
t		0.496	-3.333**	-0.343
Never smoked	106	11.160±7.719	118.736±19.239	62.349±12.349
Have smoked or currently smoke	34	10.824±6.093	111.088±18.694	62.853±11.563
t		0.262	2.061*	-0.217

Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; "p" is the probability, reflecting the probability of an event.

From Table 1, it can be seen that mindfulness and social avoidance and distress showed significant differences in whether to participate in physical activities (*ps*<0.001). Subjects who did not participate in physical activities reported more social avoidance and distress, while subjects who participated in activities reported higher levels of mindfulness. Subjects who participated in activities reported more psychological well-being, but the difference was not statistically significant (*p*>0.05).

Psychological well-being, mindfulness, and social avoidance and distress did not differ significantly by gender, place of origin, or whether only children (*ps*>0.05). With high school education as the dividing line, only 10 had below high school education, and 130 had high school education and above. Subjects with high school education and above reported more psychological well-being, and psychological well-being differed significantly by whether they had high school education and above (*p*<0.01).

However, there were no significant differences in mindfulness, social avoidance and distress between having or not having high school education and above (*ps*>0.05). However, the sample size of subjects below high school was small, and the accuracy of the data needs to be considered. With 100% exposure to smoking as the dividing line, smoking status was divided into never smoked and ever smoked or currently smoking. Similarly, it was found that subjects who never smoked reported more psychological well-being, which was statistically significant (p<0.05). There were no significant differences in mindfulness and social avoidance and distress (*ps*>0.05).

Table 2

Analysis of differences in recognition of the municipal government and relevant units, self-rated physical health status, and recognition of the city according to participation in this sports event (N=140)

	M±SD		*t*	*p*
	Participate in activities（*n*=52）	No participate in activities（*n*=88）		
Do you think the government and relevant agencies have made efforts and improvements for the development of the city?	6.000±1.400	5.100±1.640	3.436	＜0.001
Do you think the government, relevant agencies, and communities attach importance to citizens?	5.830±1.465	5.190±1.567	2.409	0.018
How do you think your current physical health compares with last month?	5.370±1.387	4.480±1.597	3.458	＜0.001
Overall, do you think Ji'an is a very good city?	1.040±0.194	1.130±0.333	-1.944	0.054

We measured some possible positive impacts of this event to examine whether the nationwide sports events organized by the municipal government had positive effects on residents' recognition of the municipal government, recognition of the city, and improvement of physical health. The results showed (see Table 2) that there were significant differences in recognition of the government and improvement of physical health according to participation in this sports event (p<0.001; p<0.05; p<0.001). Subjects who participated in this event reported higher scores in government recognition and better improvement in physical condition.

The survey on recognition of the city showed no significant difference according to participation in activities (p>0.05), indicating that recognition of the city is unlikely to change greatly due to a single sports event. We need to consider more factors such as medical insurance policies, welfare benefits, urban living environment, and cultural heritage.

As shown in Table 3, participation in sports activities was significantly positively correlated with mindfulness (p<0.001) and significantly negatively correlated with social avoidance and distress (p<0.001). This means that the less participation in sports activities (no participation in sports activities is recorded as 1, participation is recorded as 0), the lower the level of mindfulness and the more social avoidance and distress. The positive correlation between participation in sports activities and psychological well-being was not significant (p>0.05). Psychological well-being was significantly positively correlated with mindfulness (p<0.01) and significantly negatively correlated with social avoidance and distress (p<0.001). The negative correlation between mindfulness and social avoidance and distress was not significant (p>0.05).

Table 3

Correlation analysis of participation in sports activities, psychological well-being, mindfulness, and social avoidance and distress (N=140)

	1	**2**	**3**	**4**
1.Participate in sports activities	1			
2.Psychological well-being	0.152	1		
3.Mindfulness	0.368***	0.250**	1	
4.Social avoidance and distress	-0.307***	-0.443***	-0.146	1

Note: * p < 0.05, ** p < 0.01, *** p < 0.001; "p" is the probability, reflecting the probability of an event.

Using the SPSS macro program PROCESS written by Hayes, model 6 was selected, the sample was repeated 5000 times to calculate the 95% CI, and a chain mediation model of the influence of participation in sports activities on psychological well-being through mindfulness and social avoidance and distress was tested and constructed.

As shown in Table 4, most paths reached a significant level. The effects of mindfulness and social avoidance and distress on psychological well-being reached a significant level (p<0.05; p<0.001). Participation in sports activities had a direct effect on social avoidance and distress and mindfulness (p<0.01; p<0.001), but the path from participation in sports activities to psychological well-being and the path from mindfulness to social avoidance and distress did not reach a significant level (*ps*>0.05).

Table 4

Physical Activity and Psychological Well-Being: mediating effect analysis & model fitting (N=140)

Dependent variable	Independent variable	R^2	F	β	t	p
PWB	PA	0.234	13.865***	-0.117	-0.675	0.501
	FFA			0.208	2.580	0.011
	SAD			-0.430	-5.543	0.000
SAD	PA	0.096	7.256**	-0.606	-3.361	0.001
	FFA			-0.038	-0.431	0.667
FFA	PA	0.135	21.576***	0.758	4.645	0.000

Abbreviation: PA, Physical Activity; FFA, Five Facet Mindfulness; SAD, Social Avoidance and Distress; PWB, Psychological Well-Being;

Table 5

Psychological Well-Being and whether or not to participate in physical activity: Significance test of mediating effect (N=140)

	Effect	Bootstrap SE	Bootstrap 95% CI	
			Low	High
Direct Effect: PA→PWB	-0.117	0.173	-0.459	0.226
PA→FFM→PWB	0.158	0.074	0.027	0.316
PA→SAD→SW	0.261	0.105	0.082	0.489
PA→FFM→SAD→PWB	0.012	0.029	-0.042	0.078
Total Indirect Effect	0.431	0.130	0.209	0.708
Total Effect	0.314	0.174	-0.029	0.657

Abbreviation: PA, Physical Activity; FFA, Five Facet Mindfulness; SAD, Social Avoidance and Distress; PWB, Psychological Well-Being;

As can be seen from Table 5, the direct effect of participation in sports activities on psychological well-being was -0.117, and the confidence interval was [-0.459, 0.226], including 0, not reaching a significant level. The indirect effect of participation in sports activities on psychological well-being was 0.431, within the confidence interval [0.209, 0.708] and excluding 0, reaching a significant level. Among them, the effect obtained with mindfulness as the mediating variable was 0.158, and the confidence interval was [0.027, 0.316]. The effect obtained with social avoidance and distress as the mediating variable was 0.261, and the confidence interval was [0.082, 0.489]. The effect obtained with mindfulness and social avoidance and distress as chain mediums was 0.012, and the confidence interval was [-0.042, 0.078].

Among the 3 mediation paths, the effects of "PA → FFM → PWB" and "PA → SAD → SW" were within the confidence interval, and the confidence interval did not contain 0. The effect value of the path "PA → FFM → SAD → PWB" was not within the confidence interval, and the confidence interval contained 0, that is, it did not reach a significant level, and the mediation path was invalid. Judging from the effect value of the total effect, although within the range of values, the range of values contained 0 and did not reach a significant level.

In summary, the chain mediation model was not established, but two complete mediation paths could still be seen. Using the SPSS macro program PROCESS, model 4 was reselected to reconstruct the model diagram as follows.

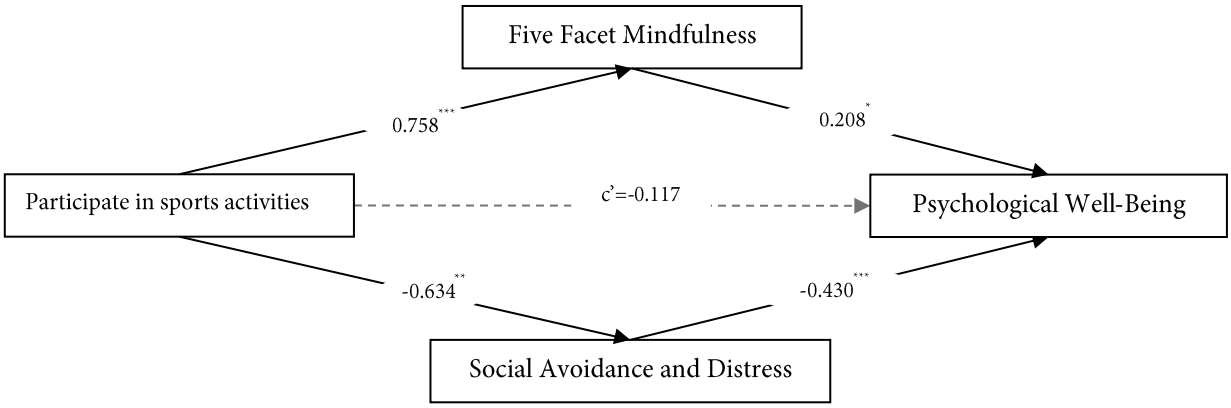

Figure 2. Multiple mediation model of the effect of participation in sports activities on psychological well-being

Table 6

Psychological Well-Being and whether or not to participate in physical activity: Significance test of mediating effect (N=140)

	Effect	Bootstrap SE	Bootstrap 95% CI	
			Low	High
Direct Effect: PA→PWB	-0.117	0.173	-0.459	0.226
PA→FFM→PWB	0.158	0.074	0.025	0.314
PA→SAD→PWB	0.273	0.103	0.099	0.507
Total Indirect Effect	0.431	0.131	0.205	0.714

Abbreviation: PA, Physical Activity; FFA, Five Facet Mindfulness; SAD, Social Avoidance and Distress; PWB, Psychological Well-Being;

As shown in Table 6, the direct effect of Physical Activity on psychological Well-Being was -0.117, and the confidence interval was [-0.459, 0.226] contain 0, there is no significant direct impact; where the effect value obtained with FFM as the mediating variable was 0.158 and a confidence interval of [0.025, 0.314]; The effect value obtained with SAD as the mediating variable was 0.273 with a confidence interval of [0.099, 0.507]. The effect values for each model were within the confidence interval and the confidence interval did not contain 0. Therefore, these two indirect effects have reached a significant level and play a completely mediating role.

5. Discussion

This study examined the effects of nationwide public sports activities organized by the government after the epidemic was opened up through experimental methods and questionnaires. It also explored the mechanism of the influence of participation in sports activities on psychological well-being and constructed multiple mediation models.

Through independent sample t-tests, we found that psychological well-being, mindfulness, and social avoidance and distress did not differ significantly in terms of gender, place of origin, or whether they were only children. Subjects with higher cultural levels and who had never smoked reported higher psychological well-being. It is worth noting that the sample size of subjects below high school level was small in this study, and the results need to be applied cautiously. Subjects who participated in activities reported significantly higher levels of mindfulness and significantly less social avoidance and distress. At the same time, they also reported more psychological well-being, but the difference was not significant. This shows that participating in sports activities can effectively improve people's mindfulness and reduce social avoidance and distress to a certain extent, which has considerable positive significance for the current social situation.

Shiwen (2023) mentioned in the study that the realistic difficulties faced by post-epidemic students include interpersonal problems and physical and mental health problems. As the most severe infectious disease in the world in a century, the new crown epidemic, with its highly contagious, highly variable, and relatively low lethality, has made epidemic prevention a marathon requiring both complexity and sustainability. During this time, people's normalized ways of production, life, and thinking have undergone major changes, and physical fitness has also been greatly impacted. Whether the future will develop into a "post-epidemic era" or a "co-epidemic era" is difficult for us to predict 100% (Gengtian & Junli, 2023). Therefore, it is important to improve the physical and psychological quality of the people as much as possible at present. The results also indicate that we can achieve such effects through carrying out and participating in sports activities.

Furthermore, we examined whether government-organized nationwide sports activities had a positive impact on residents' approval of the municipal government and the city, as well as improvement in physical health. The results showed that the positive significance was considerable. Organizing nationwide sports activities and recruiting participants could effectively improve the approval of the government and its relevant units in the minds of the public and improve the physical health of citizens.

We also found that participation in sports activities, psychological well-being, mindfulness, and social avoidance and distress were significantly correlated. Participation in sports activities can predict higher levels of mindfulness and less social avoidance and distress. Higher mindfulness and lower social avoidance and distress can predict higher psychological well-being.

In the process of constructing the chain mediation model, we found that two paths did not reach a significant level, and the chain mediation model was not established. According to the significant paths, a multiple mediation model was reconstructed. Mindfulness played a complete

mediating role in the influence of participation in sports activities on psychological well-being. Social avoidance and distress also played a complete mediating role in the influence of participation in sports activities on psychological well-being. That is, participating in sports activities cannot directly improve psychological well-being, but it can improve psychological well-being by increasing mindfulness or reducing social avoidance and distress.

Wei (2021) also confirmed in his study that sports exercise has a significant positive effect on mindfulness. He proposed that exercising 3-5 times a week for 60 minutes or more at a time has the best effect on improving mindfulness, and competitive and collective exercise has a more significant effect on mindfulness. It is also theoretically confirmed that nationwide fitness and sports activities organized by the government and its relevant departments are often able to meet the requirements of duration, competitiveness, and collectiveness simultaneously. They can also effectively improve the physical and mental health of citizens directly or indirectly and provide guarantees for people in the face of the possible "co-epidemic era" in the future. Combined with the results of this study, we call on municipal governments at all levels and their relevant departments, communities, enterprises, etc. to plan and organize sports activities, formulate activities in combination with relevant theories and professional advice, and actively promote them to increase participation and thus improve national physical and mental health and maintain and promote long-term social development.

In summary, this study found that participating in sports activities indirectly affects psychological well-being through mechanisms such as improving mindfulness and reducing social avoidance and distress. The results provide a theoretical basis for organizing and implementing nationwide sports activities after the epidemic. Nationwide sports activities are not only an important way to improve physical fitness but also an effective method to improve mental health, increase life satisfaction, and subjective well-being. The government should increase investment, encourage the general public to actively participate, and work together to promote national health. The study also provides references for related policy formulation and social practice. The research method of questionnaire survey and experiment combined in this study controlled subjective bias to a certain extent, improved the objectivity and accuracy of the research results, and the research conclusions have better generalization. However, the research also has some limitations. Follow-up studies can expand the sample size, enrich research variables, and other aspects to improve the stability and accuracy of the research results.

Conclusion

Participating in sports activities can effectively improve mindfulness and reduce social avoidance and distress. Mindfulness and social avoidance and distress both have a complete mediating role between participation in sports activities and psychological well-being.

The government and other relevant departments organizing nationwide sports activities can effectively improve public approval and improve citizens' physical fitness.

Suggestions

Participation in sports activities can directly or indirectly affect people's ability to self-adapt and social skills, which in turn affects people's well-being. The positive significance of sports activities has been confirmed in this study. Exercise habits can regulate the relationship between trait mindfulness and exercise behavior. Combined with this study, it suggests that people should carry out more sports activities, gather people to participate in activities, and develop exercise habits, which are positive and desirable. Relevant departments and communities can refer to this study and other scholars' research to formulate and carry out sports activities, adhere to people-oriented, and pay attention to people's physical and mental health. Sports activities with intensity similar to this study have strong universality and can be participated by adolescents to middle-aged and elderly people, which has a certain positive significance for the global health problems of population aging.

Prospect

In future research, researchers can consider cooperating with communities or units to regularly organize medium and large-scale sports activities and conduct phased evaluations to investigate the impact of sports activities on people's overall physical and mental health index, work input and performance of the units, and observe the changes of this impact at different stages. Is it a continuously increasing trend, fluctuating growth or other forms? Reasonable interventions can be made according to the impact trend. In addition, the impact of participating in sports activities on emotional stability can be explored, and whether it will affect family relationships, aggression levels (such as Cyberbullying), etc.

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Appendix

The impact of sports activities participation on citizens' psychological well-being, mindfulness and social avoidance

1. What is your gender?
- ○ Male
- ○ Female

2. What is your education level?
- ○ Primary school or below
- ○ Junior high school
- ○ High school
- ○ Bachelor's degree
- ○ Master's degree
- ○ Doctoral degree

3. How old are you?

Under 24 years old
- ○ 25-44 years old
- ○ 45-64 years old
- ○ 65 years old and above

4. What is your household registration type?
- ○ Urban household registration
- ○ Rural household registration

5. What is your marital status?
- ○ Unmarried
- ○ Married
- ○ Divorced
- ○ Others

6. What is your monthly income level?
- ○ Below 5,000 RMB
- ○ 5,000-10,000 RMB
- ○ 10,000-20,000 RMB
- ○ Above 20,000 RMB

7. Are you the only child in your family?
- ○ Yes
- ○ No

8. Did you participate in the exercise event held in the city on April 1?
- ○ Participated
- ○ Did not participate

9. Smoking status
- ○ None, I never smoke
- ○ Quit smoking, used to smoke but not now
- ○ Rarely smoke (<1 time/week on average)
- ○ Smoke frequently

10. Drinking status
- ○ None, never drink
- ○ Quit drinking, used to drink but not now
- ○ Rarely drink, only occasionally
- ○ Frequently drink

11. Are you a long-term resident of this city (more than one year)?
- ○ Yes
- ○ No

12. Do you think that the government and relevant departments have made some efforts and improvements for the development of this city?
- ○ Completely disagree
- ○ Basically disagree
- ○ Somewhat disagree
- ○ Unclear
- ○ Somewhat agree
- ○ Basically agree
- ○ Strongly agree

13. Do you think that the government, relevant departments and communities attach importance to citizens?
- ○ Completely unimportant
- ○ Basically unimportant
- ○ Somewhat unimportant
- ○ Unclear
- ○ Somewhat important
- ○ Basically important
- ○ Very important

14. How do you think your current health condition compares to last month?
- ○ Much worse
- ○ Worse
- ○ Somewhat worse
- ○ Unclear
- ○ Somewhat better
- ○ Better
- ○ Much better

15. On the whole, do you think Ji'an City is a very good city?
- ○ Yes
- ○ No

Short version of Ryff's Psychological Well-being Scale

Choose the option that best suits your current situation based on the following:

A.Completely disagree
B.Disagree
C.Somewhat disagree
D.In between
E.Somewhat agree
F.Agree
G.Completely agree

	A	B	C	D	E	F	G
○ 1.Overall, I think I can grasp my life							
○ 2.My decisions are rarely influenced by others							
○ 3.For me, intimacy with others is difficult and frustrating							
○ 4.My life has direction and purpose							
○ 5.I often feel lonely because few close friends can share my worries							
○ 6.I handle many responsibilities in daily life very well							

○ 7.I really enjoy in-depth communication with family or friends to understand each other
○ 8.I am often overwhelmed by the responsibilities I undertake
○ 9.I am easily influenced by assertive people
○ 10.Looking back, I don't think I have improved much
○ 11. I'm not very clear what my life goals are
○ 12.Although I have made some wrong decisions, things have turned out well in the end
○ 13.So far, I have been disappointed with what I have gained in life in many ways
○ 14.As time goes by, I have gained a lot of insights into life, making me a stronger and more capable person
○ 15.In general, I am proud of myself and my life
○ 16.Even contrary to others' opinions, I still believe in my own views
○ 17.I am good at flexibly arranging time to complete all the work
○ 18.I can actively complete the plans I have made
○ 19.I rarely have caring and trusting relationships with others
○ 20.Some people live aimlessly, but I am not like that
○ 21.I often change my decisions because friends or family object
○ 22.For me, life is a constant process of learning, changing and growing
○ 23.I have not wanted to make major improvements or changes to my life for a long time
○ 24.Everyone has weaknesses, but my weaknesses seem more than others

Bear Five-Dimensional Mindfulness Scale

17. Please rate each of the following statements based on how well it applied to you during the past week:

A.Hardly ever
B.Rarely
C.Sometimes **A B C D E**
D.Often
E.Almost Always

○ 1.I noticed little details in my surroundings, like the wind blowing through the trees, sunlight on my face, etc.
○ 2.I noticed little sounds, like clocks ticking, birds chirping, cars passing by, etc.
○ 3.I smelled the aromas and fragrances in the air
○ 4.I noticed little details about the visual elements around me, such as shapes, colors, textures, light and shadow, etc.
○ 5.I'm good at finding words to describe my feelings
○ 6.I can clearly express my beliefs, opinions, and expectations.
○ 7.Even when I felt very upset, I could find words to express it.
○ 8.I tend to describe experiences with lots of words.
○ 9.When doing things, I often daydream and get easily distracted.
○ 10.I don't notice what I'm actually doing because I'm daydreaming, worrying or distracted by outside things.
○ 11.I get easily distracted.
○ 12.I find myself doing things without paying full attention to them.
○ 13.I tell myself that I shouldn't feel the way I'm feeling right now.
○ 14.I judge my thoughts as either good or bad.
○ 15.I tell myself that I shouldn't be thinking what I'm currently thinking.
○ 16.I believe there are certain emotions I should or shouldn't have and shouldn't experience.
○ 17.When I have sad thoughts or images, I "step back" and notice them without getting carried away by them.
○ 18.In difficult situations, I pause without reacting impulsively.
○ 19.Usually, when I have distressing thoughts or images, I can quickly regain my composure.
○ 20.When I have painful thoughts or images, I typically just notice them and let them go.

Watson Social Avoidance and Distress Scale

18. Please rate each of the following statements based on how well it applied to you during the past week:

		Yes	No
○	1.I try to avoid situations that force me into social contact		
○	2.I usually feel uncomfortable at social events and gatherings		
○	3.I avoid talking to people unless I know them very well		
○	4.I usually feel anxious and tense if there are members of the opposite sex at an informal social gathering		
○	5.I usually feel anxious with other people unless I know them very well		
○	6.I often want to get away from people		
○	7.I feel uncomfortable around strangers.		
○	8.Being introduced to people makes me tense and anxious		
○	9.I avoid walking up to a group of people and joining in		
○	10.I usually feel worried and restless when with a group of people		
○	11.I like to avoid crowds		
○	12.It's hard for me to feel reassured in a large crowd of people		
○	13.I often avoid social events through various excuses		
○	14.I tend to avoid formal social occasions		
○	15.I feel relaxed even in unfamiliar social situations		
○	16.I feel reassured with strangers		
○	17.I don't particularly want to avoid people		
○	18.I usually feel calm and comfortable at social events		
○	19.I usually feel relaxed talking with members of the opposite sex		
○	20.If there is an opportunity to meet new people, I will seize it		
○	21.I usually feel relaxed when with a group of people		
○	22.I usually feel relaxed meeting people for the first time		
○	23.Although the room is full of strangers, I may still go in		
○	24.I am happy to chat with strangers when they talk to me		
○	25.Talking to people at social gatherings is not a problem for me		
○	26.I sometimes act as a go-between in introducing people to each other		
○	27.I usually participate in a wide range of social interactions available to me		
○	28.I find that being with other people relaxes me		