

Physical Exercise under Positive Psychology Improves the Psychological Sub-health State of International Trade Workers

Yongjiang Ding¹, Junfeng Liu^{2*}

Abstract

Scientific sports can strengthen the body and foster the growth of physical excellence. The body can develop normally and provide a solid material foundation for the development of mental health through participation in sports. This study aims to determine how physical activity can enhance the mental health of international trade workers. The Physical Exercise Rating Scale, the Adolescent Sub-health Multidimensional Assessment Questionnaire, and the International Trade Worker Coping Scale are utilized to select and measure international trade workers in the athletics dance exercise group and the passive and inactive group. Covariance analysis examines the differences between groups, while the structural equation model and the Sobel test are employed to analyze the mediation effect. The differences in scores of problem orientation, emotion orientation, and avoidance orientation between the sports dance group and the passive and inactive group are statistically significant ($P < 0.05$), as are the differences in scores of psychological sub-health emotional problems and social adjustment issues. In addition, the problem orientation dimension of coping styles is statistically significant for "whether to participate in sports dance" The problem orientation dimension of managing style functions as a partial mediator between "whether or not to participate in sports dance exercise" and the sub-health psychological, and emotional problems dimension.

Keywords: physical exercise, international trade workers, psychological sub-health, International Trade

1. Introduction

In 1977, the World Health Organization (WHO) defined health as "the absence of disease and infirmity, but rather a state of complete physical, mental, and social adaptation." Health is the optimal condition of human functioning, which is not only the absence of disease but also the body, psychological, behavioral, ideological, and environmental adaptation on the five sides and perfect state (Lu et al., 2022). Domestic scholars generally agree that sub-health manifests primarily in the following dimensions: physical sub-health, mental sub-health, emotional sub-health, cognitive sub-health, and behavioral sub-health. According to current research, sub-healthy development can be roughly classified into three stages: mild, psychosomatic, and disorder. In addition, fatigue, insomnia, and mood instability are its primary symptoms. However, the symptoms are more complex and can be summed up as decreased vitality, responsiveness, and ability to adapt; a clinical examination may reveal near-critical hypertension, hyperglycemia, and low immunity (Yang et al., 2022a). In addition, a preclinical state is a condition whose symptoms are not readily apparent. In addition, according to physicians, the current status of diagnosis and treatment is uncertain.

Sub-health is a new medical concept that emerged in the second half of the 1980s in the international medical community; it represents a significant advance in medical science and is also known as the "third state" or "gray state." In addition, it is a non-organic change or has not been diagnosed as a disease, but functional changes have occurred in the human body (Chen et al., 2023). Accordingly, the health organization defines a "healthy person" as a person who is physically and mentally healthy and whose social interactions are beneficial. The maintenance of physical, mental, and social perfection is what constitutes health. Sub-health, although not disease, is a symptom of modern people's physical and psychological health. The decline in human immune function makes them susceptible to disease.

In the 21st century, the number one adversary of humanity is poor health. Sub-health is the non-pathological and non-healthy state between health and disease (Liang et al., 2022). Consequently, there are terms such as "sub-health," "third state," "intermediate state," "wandering state," and "gray state," among others. WHO refers to the condition in which there are no organic diseases but functional alterations in the body. China refers to the "third state" as the "sub-health state." A survey reveals that only 5% of healthy individuals, 20% of those diagnosed with the disease, and 75% are healthy.

¹ Department of Physical Education, Zhejiang Yuexiu University, Shaoxing, 312000, China

² Department of Physical Education, Lishui University, Lishui, 323000, China

*Corresponding Author's Email: lsjlf@lsu.edu.cn

Moreover, the marginal condition of disease is a state of sub-health. These numbers demonstrate conclusively that health issues pose a significant threat to human survival and development has a negative impact on people's quality of life. Therefore, with its one-of-a-kind effect, physical activity has progressively become the treatment and prevention of ill health. Essential types of sub-health include psychological sub-health, which alludes to a state of health in the gray zone. Although this condition does not rise to the level of a mental disorder, it is no longer a standard, sound psychological state (Uddin, Burton, & Khan, 2020). Sub-healthy individuals have abnormal interpersonal communication, mood, behavior, and social adaptability and are susceptible to melancholy, irritability, and even physical symptoms like dizziness and distension. One of the most significant characteristics of psychological sub-health is that it is often concealed and unrecognized by individuals. Therefore, it can quickly become a disease, leading to depression, anxiety, and other severe threats to the human body and mind (Ren, Yang, & Zhang, 2021). Nevertheless, psychological ill-health is dynamic and can be improved or cured through suitable intervention.

This psychological subhealth state can be reversed through the implementation of specific intervention activities, according to research (Zhu & Li, 2022). According to Traditional Chinese Medicine (TCM) theory, psychological illness is caused by an imbalance of Yin and Yang and a disorder or blockage of the body's Qi, circulation, and meridians. By regulating the imbalance between Yin and Yang, it is common to use internal and external medicine or fitness exercises to enhance psychological health. Multiple studies have demonstrated that appropriate physical activity has a positive influence on the psychological sub-health of individuals. Aerobic exercises, such as the five-animal exercise, aerobics, skipping rope, stair climbing, and walking, can effectively reduce the incidence of psychological ill-health in individuals (Wang, 2020). In addition, physical exercise behaviors such as sports dance, badminton, and square dance have a more significant ameliorating effect on negative factors such as depression, anxiety, lethargy, and fear. Research findings indicate that physical activity positively enhances psychological sub-health (Figure 1).

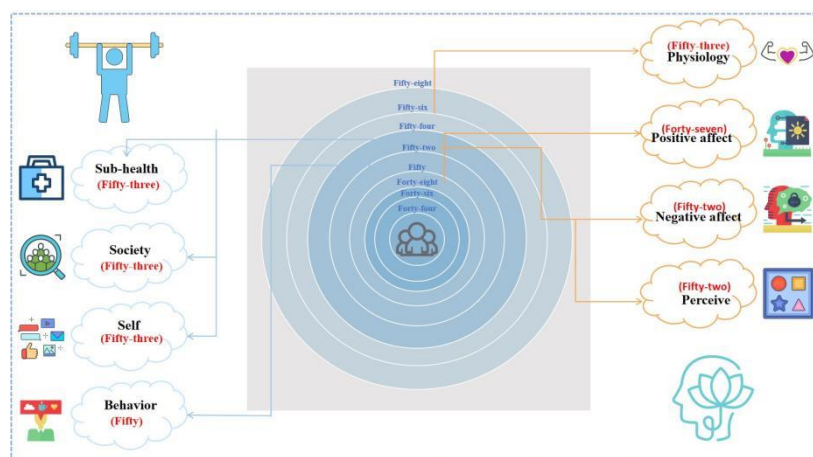


Figure 1. Physical exercise improves the country's psychological sub-health.

This study aims to determine how physical activity can enhance the mental health of international trade workers. Under positive psychology, a study on how physical exercise can improve the mental health status of international trade workers was proposed. Mental health is an integral component of physical health and a significant symbol of the new health concept. Physical activity can provide natural delight and happiness and reduce tension and anxiety, thereby regulating emotions and improving mental health. This research has significant theoretical and practical implications. The literature is enhanced as a result of this research's findings. Nonetheless, this study presents new health enhancement practices to advance knowledge critically. The prospective directions of this

research are crucial for increasing the body of knowledge among various scholars.

2. Literature Review

Even though physical activity has a positive effect on psychological sub-health, little is known about how physical activity improves psychological sub-health (Lök, Bademli, & Lök, 2023). Several studies suggest that an individual's coping style is directly related to their level of psychological sub-health, and one of the causes of psychological sub-health is excessive stress, which can lead to negative coping styles such as avoiding responsibility and experiencing negative emotions in response to

problems (Wang, 2020). Liu (2021) found that sports can substantially regulate the physiological functions of the human body, improve cardiopulmonary function, accelerate blood circulation, increase oxygen and nutrient delivery to the brain, and stimulate the release of various neurotransmitters in the brain. In addition, it makes the brain and mental response more agile, boosts cellular and humoral immunity, and prevents the transition from a healthy to an unhealthy state.

Depression, depressed mood, social inappropriateness, and social inappropriateness were found to be comparatively prevalent in the psychologically subnormal population of college students (Zeng & Li, 2022). Shi et al. (2022) suggested that coping strategies such as repression and avoidance may contribute to adolescents' suboptimal levels (Qi, 2022). Wu et al. (2023) discovered that negative coping styles may increase the probability of depression. Yang et al. (2022b) found that adolescents' coping styles significantly impacted depression onset. Consequently, coping styles may be a critical variable contributing to psychological suboptimal health, and poor coping styles can exacerbate a person's psychological suboptimal state. Several intervention studies in the field of experiencing psychological conditions discovered that aerobic exercise (sports dance yoga) had a positive effect on individuals' coping styles and psychological sub-health and that the psychological mechanism by which physical activity improves psychological sub-health may be due to the aerobic nature of physical exercise that enables individuals to have more positive coping styles, i.e., coping styles may be a mediating variable between physical activity and psychological sub-health.

However, aerobic exercise has more significant benefits for psychological health. (Campbell et al., 2019) Sports dance is an aerobic exercise with unique characteristics. It requires communication and tacit cooperation between individuals for men and women to accomplish dance routines and movements together (Xiao et al., 2022). Likewise, athletics dance practice must be accompanied by appropriate music. (Ravn, 2023). Music has a positive effect on people's demeanor. Therefore, international trade employees have embraced sports dance as a popular form of exercise. It moderately incorporates group, entertainment, and interest. It is a sport that men and women can participate in.

Numerous studies demonstrate that physical activity can alleviate stress, release inner impulses, combat tedium and monotony, and boost confidence and responsibility. Regular physical activity can significantly reduce a person's nervousness, enhance their sense of self, and eliminate discouragement and disappointment. This is a crucial

method for preserving and promoting mental health and eliminating mental illness. Physical exercise is a cost-effective, low-risk, and side-effect-free method for enhancing mental health (Dong, 2021). It has been interpreted in various ways from ancient periods to the present day. The World Health Organization (WHO) has provided a clear and exhaustive definition of health: "Health is a state of physical, psychological, and social perfection, not merely the absence of disease or infirmity." When the World Health Organization (WHO) proposed a preventive health strategy in 1999, it referred to the transitional state between disease and health as a sub-health state, a persistent and recurrent fatigue condition. It is a state of persistent and recurrent fatigue characterized by symptoms in which the body is not ailing but is psychologically depressed and tends to become less socially competent (Jiang, Song, & Young, 2022).

Regular physical exercise can enhance a person's intellectual function, thereby enhancing their attention, memory, reaction, thinking, imagination, and strength (Zhang et al., 2020). These non-intellectual factors, such as emotional stability, cheerful disposition, fatigue, etc., can positively affect individuals' intellectual function. The sub-health state is dynamic and can be restored to the initial condition and health if treated appropriately. Without active prevention and treatment, it will progress to the second state, illness, if allowed to develop. People are becoming increasingly aware of the significance of physical exercise today. Physical activity brings not only physical health but also the elimination of mental fatigue, the discovery of inner strength, and the restoration of self-confidence as a result of health and happiness. Exercise kills two birds with one stone, promoting physical health. Kang simultaneously enhances the quality of our lives. Wu et al. (2019) found that regular physical exercise can keep the body in the best state of function and slow the decline of function state, resist the attack of disease, improve physiological function, and psychological regulation, maintain an Optimistic attitude towards life, improve the ability to adapt to society, produce a good social effect in the life of physical exercise everywhere, physical activity with its unique effect, particularly for people in suicidal states.

Physical exercise uses body exercises to undertake a certain amount of exercise load, complete the close connection between movements and functional activities, improve physical fitness, promote the formation of correct posture and posture, improve skin color, shape the body, and prevent the development of body deformity from achieving human health (Cheng, 2021). Taijiquan, for instance, is propelled by the intention with the

combination of form and spirit and the variety of internal and external, rather than force. It concludes the action and demonstrates the internal labor of kung fu. Its motion is gentle. The body is stretched by combining dynamic and static stretching. It also requires abdominal respiration in addition to breathing and movement. The respiration should be consistent and deep, natural and unforced. It necessitates precise movement, economy, actual effect, and the ability to withstand a specific quantity of movement load and intensity. To enhance body function, the respiratory rate will change as exercise intensity and oxygen debt increase. Due to the influence of physical exercise on the development of the human process, ancient Greece focused on improving the beauty of the human form through physical activity as early as two to three thousand years ago (Ying et al., 2019).

The contemporary rise of popular sports in Western nations also emphasizes enhancing human muscle strength through physical activity to promote the enhancement of the entire human physique. Population quality is one of the most critical aspects of social development (Liu et al., 2023). The quality of employees in the past only emphasized ideological and moral qualities, as well as scientific and cultural qualities, but not physical qualities. Today, it should be acknowledged that tangible quality must be a component of worker quality. The physical quality is, in fact, the material foundation for ideological and moral quality as well as scientific and cultural quality. The greater the degree of modernization, the greater the importance of physical quality and physique.

Regarding this topic, Yin and Feng (2022) emphasized that the human body is the vehicle of knowledge and the dwelling place of morality. The United States formulated the National Goal of Promoting Health and Preventing Disease in 1980. The 1995 "Program of Fitness for the Whole People" and "The Project of Fitness for the Whole People" both emphasized the significance of enhancing human function and promoting health through physical activity. Physical activity is essential not only for developing bodily functions but also for improving mental health.

Physical activity can enhance one's emotional state. The leading indicator researchers have used to examine the effects of physical activity on psychological health is an improved affective state (Jiang et al., 2021). Studies have demonstrated that those who engage in regular physical activity experience less anxiety and depression than those who do not (Liao et al., 2021). Physical activity is beneficial for personality development. Moreover, physical activity helps establish a positive self-image and boost self-

confidence. Consequently, physical activity can enhance cognitive functions such as concentration and mental acuity. Therefore, numerous educational and psychological experts, as well as sports and medical experts, advocate using physical activity to promote the development of psychological health.

3. Methodology

The Physical Exercise Rating Scale, the Adolescent Sub-health Multidimensional Assessment Questionnaire, and the International Trade Worker Coping Scale are utilized to select and measure international trade workers in the athletics dance exercise group and the passive and inactive group. In addition, covariance analysis examines the differences between groups, while the structural equation model and the Sobel test are employed to analyze the mediation effect.

3.1 Research Subjects and Method

During physical activity, the body's metabolism is enhanced, and the respiratory system undergoes a series of adjustments to accommodate the metabolism's requirements. Long-term, the performance of our respiratory system will be improved. The entire process consists of three steps: internal respiration, gas transport, and external respiration. The gas exchange between the environment and the blood in the lungs (external respiration) and between tissue fluid and tissue cells (internal respiration) of blood in tissue capillaries is more significant in people who engage in regular physical activity than in those who do not.

People with sub-healthy thinking, a lack of everyday interpersonal communication, difficulty expressing their emotions, inability to scientifically release negative emotions, becoming indifferent, helpless, prone to violence, etc., pose not only a threat to health but also a potential threat to society, "Ma Jiajue's incident must provoke thought. Physical exercise, particularly group sports exercise, can enhance this group's social skills, rebuild self-confidence, and achieve specific sports objectives through sweating and shouting, releasing negative emotions, reducing stress, and increasing satisfaction. This study investigated the effect of more than three months of sports dance practice on the psychological sub-health of international trade employees. One group of 200 international trade employees who had participated in sports dance exercise for at least three months (two public classes of 90 minutes each, taught by professional dance instructors), and 188 individuals (37 males and 151

females, aged 30 to 40) completed the valid questionnaire due to illness or leave. The final number of respondents to the questionnaire was 244, comprised of 103 males and 141 females aged (25+35).

3.2 Research tools

The Multidimensional Sub-health Questionnaire for Adolescents (MSQA) is a tool for measuring psychological sub-health. This scale includes both physical and psychological sub-health. The psychological sub-health section is utilized in this study to examine the psychological distress experienced by individuals over 3 months. The severity of the symptoms increases with increasing concentration. Three dimensions have internal consistency coefficients of 0.81, 0.83, and 0.79, respectively. The International Trade Workers Coping Styles Scale is used to evaluate coping styles. The scale consists of 64 questions and is scored using a 5-point Likert scale from "1 --almost everyone uses this approach" to "5 --no one uses this approach." The scale consists of three dimensions: problem orientation, emotion orientation, and avoidance orientation. The internal consistency coefficients for the three dimensions are respectively 0.83, 0.87, and 0.78.

3.3 Statistical methods

Analysis of variance (ANOVA) and structural equation modeling implement mathematical and statistical techniques. In addition, a covariance analysis is undertaken on the two groups' international trade workers' data, and mediating effects are examined using structural equation modeling and the Sobel test. The software applications SPSS 18.0 and AMOS 17.0 are utilized in the research.

Table 1

Means and standard deviations of the given variables in the 2 groups

Variables	Problem orientation	Emotion orientation	Avoidance orientation	Conduct problems	Social adjustment problems
Sports dance group	45	48	75	25	18
Sedentary and inactive group	60	38	60	10	21

It has been suggested that the gender variable and the individual's origin environment (rural or urban) may affect exercise patterns, psychological sub-health, coping styles, stress reactions, and low self-esteem. However, this effect is not the primary focus of this research. Using the dimensions of coping styles as dependent variables, various types of sports as independent variables, and gender and place of origin as covariates, a variety III ANOVA is conducted. The results indicate that the main

4. Results and Discussion

In the 21st century, humanity's greatest nemesis is poor health. Sub-health refers to the non-pathological and non-healthy state, which is the state between health and disease; thus, secondary health states such as "intermediate state drift state," "gray state," and so on. Our country uses the term "sub-health state" to describe what the World Health Organization (WHO) refers to as the "third state," which is characterized by the absence of organic disease but the presence of specific functional alterations. According to a WHO global survey, only 5% of the population is healthy, and only 20% has been diagnosed with a disease. 75% of the population is sub-health or on the cusp between health and disease. These numbers demonstrate conclusively that health issues are a significant threat to the survival and development of humanity and significantly impact individuals' quality of life. With its distinctive effect, physical activity has progressively become an essential means of preventing and treating sub-health conditions. The results show that the sports dance group has a mean of 57.65 (≥ 43), which is a high level of exercise, while the passive and inactive group has a standard of 15.43, which is a low level of activity (≤ 19) (see Table 1). The mean of each dimension of coping style and psychological sub-health differ between the sports dance group and the passive and inactive group. Since gender and place of origin may influence the coping style and psychological sub-health, gender and place of origin should be used as covariates to exclude the influence of these two variables on the dependent variable. Therefore, the variability of each dimension requires an analysis of covariance.

effect of gender and student origin on coping style is not statistically significant and that the scores of each dimension of managing style differ significantly between the athletics dance group and the passive and inactive group. Problem orientation ($F=0.498$), emotion orientation ($F=267.726$, $P<0.05$, bias $\eta^2=0.385$), and avoidance orientation ($F=322.498$, $P<0.05$, bias $\eta^2=0.430$) are all significantly improved in the sports dance group compared to the passive and inactive group (see Table 2).

Table 2*Test for differences in coping styles between the sports dance group and the passive and inactive group*

Source	Response	Mean square	F	P
Calibration models	Problem orientation	40	158	0.000
	Emotion orientation	10	98	0.000
	Avoidance orientation	29	111	0.000
Intercept distance	Problem orientation	30	700	0.000
	Emotion orientation	35	960	0.000
	Avoidance orientation	26	101	0.000
Gender	Problem orientation	41	2	0.0126
	Emotion orientation	23	0.1	0.026
	Avoidance orientation	55	0.3	0.156
Type of movement	Problem orientation	36	424	0.000
	Emotion orientation	26	236	0.000
	Avoidance orientation	42	356	0.000

The results indicate that only gender significantly impacts the primary effect of the psychological sub-health scale in the dimension of conduct and social adjustment problems. After excluding the impact of gender, the athletics dance group and the passive and inactive group significantly affect the psychological sub-health scale's dimension of emotional problems and social adjustment issues. On the emotional and social adjustment dimensions, the differences in scores between the athletics dance group and the passive and inactive group are statistically significant. The differences in

scores between the sports dance group and the passive and inert group are statistically significant. The differences in scores for emotional problems ($F=14.464$, $P<0.05$, skewed by $\eta^2=0.014$) and social adjustment problems ($F=5.989$, $P<0.05$, skewed by $\eta^2=0.014$) are more minor, indicating that the sports dance group is superior to the passive and inactive group. The differences in conduct problem ratings between the two groups are not statistically significant (see Table 3). The difference in conduct problem scores between the two groups is not statistically significant (see Table 3).

Table 3*Difference test between the sports dance group and the passive and inactive group on psychological sub-health*

Source	Heart pressure health	Mean square sum	F	P
Calibration models	Emotional problems	3340	7.03	0.000
	Conduct problems	250	3.01	0.000
	Social adjustment problems	2848	9.23	0.000
Intercept distance	Emotional problems	19000	125	0.000
	Conduct problems	3345	119	0.000
	Social adjustment problems	13260	132	0.000
Gender	Emotional problems	420	2.36	0.0126
	Conduct problems	230	7.25	0.026
	Social adjustment problems	1699	16	0.156
Type of movement	Emotional problems	2756	15	0.000
	Conduct problems	3.269	0.2	0.000
	Social adjustment problems	630	6	0.000

The findings presented above demonstrate that when covariates are considered, the group that participates in sports dance achieves higher scores than the passive and inactive group on all dimensions of coping. This suggests that people participating in sports and dancing regularly are more likely to respond positively to stressful problems. On the emotional and social adjustment dimensions of

psychological sub-health, the group that regularly participates in sports dance training scores higher than the passive and inactive group. This suggests that regular sports dance training leads to a more favorable experience. There is no significant difference between the two groups on the dimension of conduct problems. This may suggest that although conduct problems manifest in psychological

ill-health, the decision to participate in sports dance exercise or not does not significantly affect an individual's behavior.

The current study not only contrasts the coping strategies and psychological sub-health states of inactive employees with those of sports dance, but it also investigates the psychological impacts of sports dance on improving psychological sub-health among workers in international commerce. This study investigates the differences in coping strategies and psychological sub-health between students who participate in sports dance and students who participate in sedentary activities. It also investigates further the psychological mechanisms that sports dance uses to improve the psychological sub-health of international trade employees. According to the findings, participation in sports dance training can encourage international trade professionals to adopt more constructive coping techniques when confronted with stress or pressure and improve the psychological well-being of those employed in international trade. The mediation effect test demonstrates that training in sports dancing can help individuals' emotional difficulties by encouraging workers in international trade to adopt more problem-coping strategies. According to the findings, there are statistically significant differences ($P < 0.05$) in the scores of problem orientation, emotion orientation, and avoidance orientation between the sports dance group and the passive and inactive group. Additionally, there are statistically significant differences ($P < 0.05$) in the scores of psychological sub-health emotional problems and social adjustment issues between the sports dance group and the passive and inactive group.

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5. Conclusion

Physical exercise is irreplaceable to improve the mental environment and mental health, as no other method is as effective. As a new generation entering the 21st century, we must consciously strengthen our self-cultivation, give physical exercise its due in the coordinated development of body and mind, and encourage the healthy development of psychology. The study of the sub-health state is a medical, psychological, social science, philosophy, humanities, and other interdisciplinary science at the margins of human health. It should be noted that the sub-health process spans a vast amount of time and space. The research is still in its infancy, and some issues must be investigated.

Nevertheless, medical and sports professionals have acknowledged that physical activity eliminates sub-health status. In addition to enhancing people's quality of life, it can effectively surmount work and study. "subhealth" refers to the "third state" between health and disease. It is a dynamic state of change that, if handled appropriately, can be transformed into health. Otherwise, it will lead directly to the development of disease. Physical activity is an essential means of promoting people's physical, mental,

and social health, and it plays a crucial role in eradicating the "sub-health" condition of international trade laborers. Workers in international trade should raise awareness of "sub-health" conditions. If you are already in a "sub-healthy" state, it is recommended that you alter your condition through appropriate physical activity. Those who are presently in good health should not disregard their health. To prevent a "sub-health" state, physical exercise improves physical endurance, mental health, and social adaptability. Moreover, with the rapid development of material civilization and spiritual civilization, people's health is also being tested, resulting in a sub-health state and a gradually rising trend of poor physical function changes and treatment, which requires us to establish confidence, according to different people to develop scientific and reasonable fitness prescriptions, according to different symptoms, the correct medicine. People have now classified physical exercise as a medical practice to prevent and manage a sub-health state. It has explained how to prevent and treat sub-health conditions through moderate physical activity in our lives and society. Physical activity serves an essential role in the prevention and treatment of sub-health due to its unique effect.

6. Theoretical and Practical Implications

The study reported in the literature that sub-health employees must have an exercise routine because it improves their health performance. Physical activity is necessary to enhance psychological well-being, an essential component of human health. Enhanced health activities are required for the improvement of health behavior, and they can also improve one's mental state. A positive attitude toward health enhances the mental standard and the development of thought. Thus, the available resources should be utilized by healthcare professionals to strengthen the health of their patients. This study has other

practical implications that were not previously reported. The international trade units must manage employees' health-related awareness because doing so can improve their health. The current health standard for global trade laborers is insufficient, and they must advance their work more critically. When employees are trained to enhance their performance on the job, they can create more effective strategies. The availability of health-related resources can encourage employees to adopt a more health-conscious approach to work, enhancing the health standard.

7. Future Directions

This research has produced significant findings and empirical results that test the theory. However, this study's findings have some limitations that the statistical findings of future research must address. For example, future research is required to ascertain the moderating effect of health awareness programs on the relationship between physical fitness and the mental health of international trade workers. Future studies do not address this gap in the literature, and these findings would significantly and critically enhance the literature. In addition, data should be collected from the population of another country to generalize research findings.

Data Availability

The experimental data used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest

The authors declared that they have no conflicts of interest regarding this work.

Funding Statement

There is no specific funding to support this research.

References

- Campbell, R. S., Lehr, M. E., Livingston, A., McCurdy, M., & Ware, J. K. (2019). Intrinsic modifiable risk factors in ballet dancers: Applying evidence based practice principles to enhance clinical applications. *Physical Therapy in Sport*, 38, 106-114. <https://doi.org/10.1016/j.ptsp.2019.04.022>
- Chen, X., Jiang, X., Zheng, Q., Wang, H., Xue, H., Pan, Y., Liao, Y., & Gao, X. (2023). Prevalence and risk factors of sub-health and circadian rhythm disorder of cortisol, melatonin, and temperature among Chinese midwives. *Frontiers in Public Health*, 11, 1142995. <https://doi.org/10.3389/fpubh.2023.1142995>
- Cheng, Y. (2021). The Effect of Psychological Contract Combined With Stress and Health on Employees' Management Behavior. *Frontiers in Psychology*, 12, 667302. <https://doi.org/10.3389/fpsyg.2021.667302>
- Dong, Y. (2021). Research on the Mechanism of Physical Exercise Affecting Residents' Self-rated Health:—Empirical analysis based on CFPS2018 data. In *2021 International Conference on Health Big Data and Smart Sports (HBDSS)* (pp. 9-20). IEEE. <https://doi.org/10.1109/HBDSS54392.2021.00011>

- Jiang, W., Song, D., & Young, K. D. (2022). Examining the intervention effect of mental health training on the psychological literacy of college graduates. *Perspectives in psychiatric care*. <https://doi.org/10.1111/ppc.13139>
- Jiang, X., Zhang, L., Gao, Y., He, C., Tang, Z., & Sun, J. (2021). An Empirical Study on Physical Sub-Health Risk Perception: Physical Examination Data of Tertiary Grade-A Hospitals in Anhui Province, China. *Research Square*. <https://doi.org/10.21203/rs.3.rs-154598/v1>
- Liang, L., Zheng, Y., Ge, Q., & Zhang, F. (2022). Exploration and strategy analysis of mental health education for students in sports majors in the era of artificial intelligence. *Frontiers in Psychology*, 12, 6648. <https://doi.org/10.3389/fpsyg.2021.762725>
- Liao, Y.-Q., Li, M.-M., Lu, W.-X., Pan, Y.-B., Gong, J.-R., & Shan, M.-H. (2021). Prevalence of Sub-health Status among College Students in Guangzhou Baiyun Technician College Business during the Coronavirus Pandemic. *International Journal of Medicine and Public Health*, 11(2), 96-102. <https://dx.doi.org/10.5530/ijmedph.2021.2.17>
- Liu, J., Kowal, I., Yang, Y., Zhu, Y., Chen, S., Perez, A., Rao, H., & Group, C. O. A. Q. E. (2023). Culturally tailored group Qigong exercise in older Chinese immigrants: A feasibility study. *Geriatric Nursing*, 51, 245-252. <https://doi.org/10.1016/j.gerinurse.2023.03.021>
- Liu, Y. (2021). Study on the Status Quo of College Students' Sub-health and Its Intervention. *International Journal of Social Science and Education Research*, 4(7), 144-149. [https://doi.org/10.6918/IJOSSER.202107_4\(7\).0022](https://doi.org/10.6918/IJOSSER.202107_4(7).0022)
- Lök, N., Bademli, K., & Lök, S. (2023). The effect of a physical activity intervention on burden and healthy lifestyle behavior in family caregivers of patients with schizophrenia: A randomized controlled trial. *Archives of Psychiatric Nursing*, 42, 33-39. <https://doi.org/10.1016/j.apnu.2022.12.006>
- Lu, J., Sun, H., Zhou, J., & Xiong, J. (2022). Association between Physical Fitness Index and Psychological Symptoms in Chinese Children and Adolescents. *Children*, 9(9), 1286. <https://doi.org/10.3390/children9091286>
- Qi, D. (2022). Study on the Correlation Between College Students' physical Cognitive Structure, Psychological Negative Emotion and College Physical Exercise. *Psychiatria Danubina*, 34(suppl 2), 192. <https://hrcak.srce.hr/282022>
- Ravn, S. (2023). Integrating qualitative research methodologies and phenomenology—using dancers' and athletes' experiences for phenomenological analysis. *Phenomenology and the Cognitive Sciences*, 22(1), 107-127. <https://doi.org/10.1007/s11097-021-09735-0>
- Ren, H., Yang, Q., & Zhang, X. (2021). Relationship between college students' physical activity and unhealthy psychological conditions. *Aggression and Violent Behavior*, 101640. <https://doi.org/10.1016/j.avb.2021.101640>
- Shi, M.-L., Yan, M.-Q., Su, J., Yu, J.-J., Ye, S.-Y., Fu, M., Hu, X.-L., Niu, Z.-W., Wu, W.-Y., & Chen, S.-M. (2022). Effects of *Dendrobium officinale* ultrafine powder on sub-health mice induced by unhealthy lifestyle based on neuroendocrine immune system. *Food & Function*, 13(23), 12436-12450. <https://doi.org/10.1039/d2fo02158g>
- Uddin, R., Burton, N. W., & Khan, A. (2020). Combined Effects of Physical Inactivity and Sedentary Behaviour on Psychological Distress Among University-Based Young Adults: a One-Year Prospective Study. *Psychiatric Quarterly*, 91(1), 191-202. <https://doi.org/10.1007/s11126-019-09697-2>
- Wang, G. (2020). Correlation between aerobic exercise and improvement of physical sub-health based on multiple linear regression. In *2020 12th International Conference on Measuring Technology and Mechatronics Automation (ICMTMA)* (pp. 1039-1043). IEEE. <https://doi.org/10.1109/ICMTMA50254.2020.00223>
- Wu, H., Yin, X., Chai, X., Li, Y., Wang, G., Yang, X., Sun, Y., Ren, S., Bi, C., & Li, M. (2019). Research on mental sub-health of Chinese Han adolescents with different nutritional statuses. *Annales Médico-psychologiques, revue psychiatrique*, 177(4), 313-318. <https://doi.org/10.1016/j.amp.2018.09.010>
- Wu, K., Wang, S., Ding, T., & Li, Y. (2023). The direct effect of exercise on the mental health of scientific and technological professionals and the mediating effects of stress, resilience, and social support. *Frontiers in Public Health*, 11, 1074418. <https://doi.org/10.3389/fpubh.2023.1074418>
- Xiao, X., Yu, Y., He, Q., Xu, D., Qi, Y., Ma, L., & Deng, X. (2022). Does Regular Physical Activity Improve Personal Income? Empirical Evidence from China. *Nutrients*, 14(17), 3522. <https://doi.org/10.3390/nu14173522>
- Yang, M., Sheng, X., Ge, M., Zhang, L., Huang, C., Cui, S., Yuan, Q., Ye, M., Zhou, R., & Cao, P. (2022a). Childhood trauma and psychological sub-health among Chinese adolescents: the mediating effect of Internet addiction. *BMC psychiatry*, 22(1), 1-10. <https://doi.org/10.1186/s12888-022-04384-2>
- Yang, T., Wang, Z., Li, X., Ma, R., & Fan, X. (2022b). Research Progress on the Preventive and Curative Effects of Traditional Sports and Wellness Exercises on Sub-health. *International Journal of Frontiers in Medicine*, 4(4), 23-27. <https://doi.org/10.25236/IJFM.2022.040405>

- Yin, F., & Feng, Z. (2022). Effect of physical exercise on psychophysiological indexes of medical social workers. *Revista de Psicología del Deporte (Journal of Sport Psychology)*, 31(2), 276-284. <https://rpd-online.com/index.php/rpd/index>
- Ying, W., Min, Q. W., Lei, T., Na, Z. X., Li, L., & Jing, L. (2019). The health effects of Baduanjin exercise (a type of Qigong exercise) in breast cancer survivors: A randomized, controlled, single-blinded trial. *European Journal of Oncology Nursing*, 39, 90-97. <https://doi.org/10.1016/j.ejon.2019.01.007>
- Zeng, S., & Li, L. (2022). Analysis and Countermeasures of related factors between mental health and physical exercise of Law College Students. *Revista de Psicología del Deporte (Journal of Sport Psychology)*, 31(1), 17-25. <https://rpd-online.com/index.php/rpd/article/view/631>
- Zhang, M., Chen, H., Huang, C., Li, X., Xu, D., Li, J., Liu, Q., & Xu, J. (2020). Investigation and Analysis of the Sub-health Status of the Members of the Medical Team Aiding Wuhan During the Novel Coronavirus Pneumonia (COVID-19) Outbreak. *Research Square*. <https://doi.org/10.21203/rs.3.rs-74743/v1>
- Zhu, W., & Li, J. (2022). Analysis and Exploration on the Integration of Mental Health Education into College Physical Education Practice. *Computational Intelligence and Neuroscience*, 2022, 5195909. <https://doi.org/10.1155/2022/5195909>