

Students' Sports Engagement and Its Effects on Mental Well-Being as Mediated by Stress in Shiyuan College of Nanning Normal University

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Abstract

This study, grounded in Self-Determination Theory and the PERMA model, investigated the impact of sports engagement on the mental well-being of students at Shiyuan College of Nanning Normal University, with stress examined as a mediating variable. A cross-sectional survey design was employed, and data were collected from 200 students through structured questionnaires. Data analysis utilized structural equation modeling and mediation effect analysis. The results indicated that students' levels of sports engagement were high across the three dimensions of autonomy, competence, and relatedness. Similarly, psychological well-being demonstrated positive states across the five dimensions of positive emotions, engagement, relationships, meaning, and accomplishment. Correlation analysis revealed significant positive relationships between all dimensions of sports engagement and all dimensions of psychological well-being. Furthermore, the findings showed that stress played a partial mediating role in the relationship between sports engagement and psychological well-being. Positive sports engagement directly enhanced students' psychological well-being and contributed indirectly by reducing stress levels. Based on these findings, a targeted physical and mental health intervention plan was developed, and relevant recommendations were proposed. The study aimed to enhance students' psychological well-being by optimizing sports participation experiences and improving stress management strategies.

Keywords: Self-Determination Theory, PERMA model, sports engagement, mental well-being, stress, mediation, Chinese university students

Introduction:

University students over the world are more likely to experience psychological distress. This includes problems like anxiety and depression. University students in China are under a lot of pressure to do well in school. This makes them more vulnerable. We need to find ways to help university students deal with their health. This is especially true in China where the education system's very competitive. We need to understand what helps university students stay well in this environment. University students and mental health is a concern. Mental health interventions, for university students are really important.

Sports are really good for students. When students play sports it helps them feel better about themselves. Sports participation reduces stress improves mood boosts self-esteem and helps students make friends. This is what we learn from sports participation research. However we do not know much about how sports participation affects university students. There is not research on sports participation and Chinese university students. Sports participation is good for students. We need to do more research, on Chinese university students and sports participation. The difference is really big at Shiyuan College of Nanning Normal University. This college is in Nanning, Guangxi where the economy and society are changing fast. People there think it is very important to get people to exercise. There are not many studies about this in that area. As a teacher at this college the researcher sees how pressure the students are under and that there is not enough information about how sports affect the students at Shiyuan College of Nanning Normal University. So the researcher thinks it is very important to find out how playing sports affects the being of students, at Shiyuan College of Nanning Normal University.

This study is really important because it helps us learn more about how sports affect the health of students at Shiyuan College. We need to know more about this so we can help students at Shiyuan College have mental health. The study will give us the facts we need to understand how sports can help students at Shiyuan College feel better.

This will help people who make decisions about health at schools come up with plans to help students at Shiyuan College. The study is looking at students at Shiyuan College and sports participation and mental health to see

what is going on. This is a problem that we need to solve so students at Shiyuan College can be healthy and happy. By doing this study we can find out what works best for students, at Shiyuan College. Help them in a way that really makes a difference.

This study holds significant value for Physical Education and Psychology by addressing a critical gap in understanding the sports participation-psychological well-being relationship among students at Shiyuan College of Nanning Normal University. Its findings provide substantive contributions to knowledge, serving as a foundational reference for future research.

The research is really important because it helps students make health choices based on facts. It also gives teachers and people who write school programs the information they need to make their teaching. Additionally the research gives people who make decisions at schools the evidence they need to create rules that help students develop in a complete way. At the time the research helps the person doing the study become a better researcher in the field of sport psychology and understand the subject more deeply. The sport psychology research is very useful for the researcher and, for students.

Methodology:

This part is about how the research was done. It talks about the research design and the approach that was used. The people who took part in the research and what made them suitable for it are also discussed. The place where the research was done and the tools that were used are mentioned too. The way the data was looked at and what steps were taken are also covered. The research also thought about what's right and wrong. The methodology of the research is very important. It includes many things, like the environment and the instruments that were used for the research. The analysis and the procedures that were followed are also a part of the methodology of the research.

Design

The study examined the relationship between participation in sports and students' mental health. It aimed to determine whether stress functioned as a mediating factor in the relationship between sports participation and psychological well-being. This approach enabled the researcher to assess the extent to which stress explained the connection between sports engagement and students' mental health outcomes. The study analyzed the frequency of sports participation and the corresponding psychological responses to better understand the potential impact of sports on mental well-being. Overall, the research focused on the interaction between sports participation, stress, and students' mental health.

Environment

The study took place at Shiyuan College of Nanning Normal University. This university has a lot of colleges than 10 secondary colleges. Nanning Normal University is in a city that's really important for learning and studying. The city is a place for people to do research and it has a big effect on the local economy and the way people live in the area. People, in the city are involved in a lot of research and activities at Shiyuan College of Nanning Normal University.

Participants

To determine the sample size, a proportional quota sampling was used for each year level, with 25 males and 25 females, making a total of 200 participants in all the four levels. Selection of the students was done using random sampling technique but ensuring representations meet the selection criteria and diversity in gender, age, and discipline. (Table 1)

In addition, the following inclusion and exclusion criteria for participating in the study. should meet the following conditions: (a) students from any university in Nanning, Guangxi, China; (b) must be 18 years old and above, (c) must be currently enrolled in college, ; (d) must be willing to participate and give informed consent. Any person who does not meet the conditions stated in the inclusion criteria was automatically excluded from this study.

Table 1

Frequency Distribution of the Participants of the Study

Year level	Male	Female	Total
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Freshmen	25	25	50
Sophomore	25	25	50
Juniors	25	25	50
Seniors	25	25	50
Total	100	100	200

Instruments

The study utilized four instruments for data gathering. First is the profile of the participants which describe their personal characteristics as age, gender, and year level. and major. The second instrument is a measure of the level of Sports Engagement which has 15 items equally distributed in three dimensions Autonomy, Competence and Relatedness (Ryan and Deci, 2000). The reliability measures are all acceptable, being greater than the 0.70 threshold. Competence has an alpha of 0.84, autonomy has 0.84 alpha and relatedness has 0.90 alpha. (Wang, et al., 2019).

The third instrument is a measure for mental well-being using the PERMA questionnaire that consists of 15 items in five domains defined by Seligman (2011). Namely positive emotion, engagement, relationships, meaning, and accomplishment. The psychometric properties or the Cronbach's alpha, except for engagement, which had a reliability value of 0.57, all five subscales had acceptable reliability ratings of over 0.70 with Positive Emotion (P) alpha= 0.91; Engagement (E) Alpha = 0.57; Relationships (R), alpha=0.78 Meaning alpha=0.90 ad accomplishment alpha =0.70

Overall reliability yielded a /Cronbach alpha of 0.75 ((Al-Hendawi, M., Alodat, A., Al-Zoubi, S. et al, 2024)

The fourth instrument is the measure for level of stress at the present time. Perceived stress scale (Cohen et al., 1983) is a 14 item scale based on the psychological-health approach of stress by Lazarus & Folkman, which describes a situation as stressful when it is perceived as threatening, unpredictable and uncontrollable. The reported internal consistency of the scale indicated by Cronbach's alpha ranged from .71 to .91, while the test-retest reliability has been generally observed at $r > .70$ among different populations. (Reyes, et al., 2023).

All three measures utilized a 5-point Likert scale to answer the items using the following parameters and score ranges in Table 2.

Table 2

Parameters and Score Ranges

Scale	Initial	Range	Interpretation	Description
5	SA	4.21-5.00	Strongly Agree	The level of agreement is extremely high all the time.
4	A	3.41-4.20	Agree	The level of agreement is high most of the time.
3	NAD	2.61-3.40	Neither agree nor disagree	The level of agreement is in between
2	D	1.81-2.60	Disagree	The level of agreement is rarely high
1	SD	1.00-1.80	Strongly Disagree	The level of agreement is very low.

Data Gathering Procedure Pre-Data Gathering

Before commencing the research project, the researcher obtained permission from the Dean of the University of the Visayas Graduate School of Education. An endorsement from a panel member was also secured to support the research project. The researcher followed a compliance checklist to ensure that all requirements were met, and the research manuscript was submitted to the University of the Visayas Research Ethics Committee (UV-REC) for technical and ethical review.

Once the UV-REC approved the manuscript, it issued a Notice to Proceed Certificate, authorizing the researcher to begin data collection. Subsequently, the researcher sent a formal letter to the President of Nanning Normal University, requesting permission to administer the questionnaires either virtually or electronically.

Actual Data Gathering

Data collection began after the researcher received the Notice to Proceed from the University of the Visayas Institutional Review Board (UV-IRB). Participants were recruited from universities in Nanning City, China, using a sampling method designed to minimize socio-economic biases and allow participants to choose a convenient time to complete the survey.

The researcher administered the questionnaires in two formats: online, via a secure survey platform, or face-to-face, using paper forms at mutually agreed-upon locations outside the campus. Completion of the survey took approximately 15–20 minutes per participant. Online responses were automatically stored in a secure database, while paper responses were collected by the researcher, digitized, and securely stored for analysis. Participation was entirely voluntary, and only participants who signed an informed consent form were included in the study. The consent form explained the purpose of the study, potential risks, and the measures taken to ensure confidentiality.

Post-Data Gathering

After completing data collection, the researcher organized and consolidated all survey responses. Data were analyzed using statistical software, such as JAMOV, and the results were presented in tables with interpretations based on the analyzed data. To ensure confidentiality, the researcher removed all identifying information at the outset. The data were stored on password-protected computers and secure devices accessible only to the researcher. Signed consent forms were kept separately in locked cabinets. After the completion of the study and dissemination of results, all files containing identifiable information were permanently deleted using secure software, leaving only anonymized data for reporting.

Data Analysis

The study employed descriptive statistics, including frequency, percentage, mean, and standard deviation, to describe the demographic profile of the respondents. The levels of sports engagement and mental well-being were analyzed using mean and standard deviation. To examine the relationship between sports engagement and mental well-being, the Pearson product-moment correlation coefficient (Pearson r) was applied.

Mediation Analysis

The mediation analysis examined the collected data to explore the relationship between sports participation and mental well-being and to determine whether stress acted as a mediating factor. The analysis included participants' demographic information, sports engagement levels, and mental well-being scores, along with the interrelationships among these variables.

The mediation analysis followed several steps. First, the researcher assessed descriptive statistics to understand participants' sports engagement and mental well-being levels. Next, correlations were calculated to determine the association between sports participation and mental health outcomes. Finally, the researcher examined whether stress mediated this relationship, providing deeper insight into the mechanisms linking sports engagement and psychological well-being.

The mediation analysis offered a comprehensive understanding of how sports participation influenced the mental well-being of college students in Nanning and provided a foundation for future research on this topic. It was instrumental in elucidating the relationship between sports engagement and psychological health within this population.

Ethical Consideration

This study was conducted in accordance with the principles outlined in the Declaration of Helsinki, established by the World Medical Association in 2013. Approval for the study was obtained from the Research and Ethics Committee of the University of the Visayas on March 4, 2025, with Reference Number NTP2025EDO- 081.

The study included minor participants, who voluntarily agreed to participate by completing the survey either online or in person. The researcher ensured that all procedures complied with the Declaration of Helsinki guidelines and university regulations regarding ethical research conduct.

Prior to completing the questionnaires, participants signed an informed consent form, which outlined the study's purpose, procedures, potential risks and benefits, confidentiality measures, voluntary participation, data protection procedures, and contact information for the researcher.

The researcher followed the university's ethical guidelines to ensure that participants were treated fairly and respectfully. Measures were implemented to protect participants' anonymity, ensuring that their identities remained confidential. The researcher maintained the confidentiality of all responses and respected the rights of participants throughout the study.

Results and Discussion:

Students Profile

The students profile includes four characteristics, age, gender, year level and Major or specialization as presented in Table 3.

Table 3

Demographic Profile of the Students

Variable	Category	Frequency	Percentage
Age	18-20	120	60.0
	21-25	80	40.0
Sex	Male	100	50.0
	Female	100	50.0
Year Level	1 st	25	25.0
	2 nd	25	25.0
	3 rd	25	25.0
	4 th	25	25.0
Major/Program	Sports	100	50.0
	Management	60	30.0
	Arts	40	20.0

n-200

Age. Most of the respondents (60%) are aged 18–20 years old, while 40% are aged 21–25 years old. This indicates that most participants are in the typical college- age range, suggesting that the respondents are generally young adults who are at an active stage of academic engagement and social development.

Sex. The sample is evenly distributed between male (50%) and female (50%) respondents. This equal representation implies that both genders are fairly represented, allowing balanced insights regarding perceptions of the variables measured.

Year Level. All four year levels are equally represented, with 25% each from the first, second, third, and fourth years. This even distribution ensures that perspectives from all academic levels are captured, reflecting the experiences of students across their entire university journey.

Major/Program. Half, 50%, of the respondents are in Sports programs, 30% are in Management, and 20% are in

Arts. This distribution indicates that a vast number of respondents are from fields that relate to physical education and sports, as well as students from management and arts fields.

In conclusion, the demographic characteristics of the respondents include being young adults aged 18 to 20 years old, balanced by both male and female representation, and are well-distributed within year levels. They are largely sports majors, followed by management and arts majors. This would create a well-distributed sampling of respondents who could present diversified and representative perspectives on the variables of the study.

Level of Sports Engagement

The sports engagement of university students is defined by their active and consistent involvement in organized athletic activities. These will be measured using a 15-item questionnaire with three dimensions, namely: autonomy, competence, and relatedness (Table 4).

Autonomy. This was rated as high for students' sports engagement as well. Also, the participants believed that the influencing factors of flexible sports time arrangement, optional sports project selection, independent decision-making on exercise intensity, freedom to choose training partners, and self-regulated participation frequency were very important to the relationship between sports engagement and mental well-being.

You can see that Shiyuan College of Nanning Normal University is doing a job of helping students be in charge of their own sports activities. They have different sports classes like badminton and yoga and basketball. Students can change their practice times if they have a lot of school work to do. The school also has exercise equipment that students can use when they are not, in class.. Students are free to start their own sports teams. All of these things help students want to play sports and feel less stressed out. Shiyuan College of Nanning Normal University is really supporting students sports autonomy in ways. The college should keep doing what it is doing to support students and give them the freedom to choose. They should also think about adding sports that students can pick from if they want to. This means the college will have more optional sports for students to try out.

Table 4
Level of sports engagement among university students in Nanning City

Dimensions/Indicators	Mean	SD	Interpretation
<i>Autonomy</i>			
1.My involvement in sports is something I can manage.	3.74	.475	Agree
2.Playing sports enables me to exhibit my uniqueness.	3.75	.468	Agree
3.My involvement in sports is consistent with my interests and values.	3.68	.490	Agree
4.I have the discretion to decide what sport to play.	3.75	.468	Agree
5.I am free to choose how often and when I want to engage in sports?	3.70	.542	Agree
Factor mean	3.72	.489	High
<i>Competence</i>			
1.I have faith that I can participate in sports.	3.66	.533	Agree
2.I can develop my athletic abilities.	3.73	.488	Agree
3.My engagement in athletics is challenging.	3.68	.609	Agree
4.I'm driven to improve my athletic performance.	3.56	.623	Agree
5.I enjoy the sense of accomplishment I get from doing sports.	3.70	.499	Agree
Factor mean	3.67	.550	High

<i>Relatedness</i>			
1. I participate in sports because it makes me feel social.	3.74	.481	Agree
2. A sense of community as a result of my engagement in sports.	3.74	.481	Agree
3. My involvement in athletics enables me to establish beneficial partnerships.	3.70	.529	Agree
4. I meet folks who share my interests through my engagement in sports.	3.74	.473	Agree
5. My involvement in athletics gives me the chance to meet with people from other backgrounds.	3.75	.468	Agree
Factor mean	3.74	.414	High
Grand mean	3.71	.484	High

Note: $n=200$. Legend: 1.00 – 1.80=Strongly Disagree/Very Low, 1.81 – 2.60=Disagree/Low, 2.61 – 3.40 Neither Agree nor Disagree/Moderate, 3.41 – 4.20=Agree/High; 4.21-5.00= Strongly agree/Very High.

Competence. We have projects that let students help make plans for sports activities on campus. This will make sports more fun for students. Help them with their mental health levels. Students can give their ideas to make the sports activities better. The goal is to get more students to take part in sports and feel good, about themselves. We want students to be happy and healthy and sports can help with that.

People think that being good at sports is important for students who play sports. The students also think that things like what the coach says making sports tasks a little harder each time getting feedback on how they're doing being able to learn new sports skills and getting recognition for doing a good job in sports are very important for how much they like playing sports and how it affects their mental health. Sports engagement is very important. The students think that these things are all connected, to sports engagement and mental well-being. Sports engagement is something that the students think about a lot.

Shiyuan College of Nanning Normal University is doing a job of helping students get better at sports. They are doing this in ways. For example they are hiring part-time sports coaches to help with projects. They are also setting up levels of sports training, like beginner, intermediate and advanced.

Students get reports on how fit they're which helps them see how they are doing. The college even has a website where students can watch videos to learn sports skills.

Shiyuan College of Nanning Normal University also has a sports event every year to recognize the students who are really good at sports. All of these things help students feel more confident when they play sports and make them feel less stressed. Shiyuan College of Nanning Normal University is really helping students with sports. That is a good thing, for the students. The college should keep doing things that help students get better at sports. They need to hire coaches who are experts in certain sports like taekwondo and rock climbing. The college should also have a system to check how good students are at sports and give them feedback on a basis. This will help students get better at sports and feel good about themselves. The college needs to keep working on helping students, with sports and their mental well-being. Sports are important for students and the college should keep helping them with this.

Relatedness. “This was seen as important for students who play sports. The people in the study thought that getting along with friends during sports talking to coaches in a way feeling like they are part of a sports team playing sports with classmates and cheering each other on were all very important for sports and mental health. The students believed that these things help a lot with sports engagement and feeling good about themselves. Sports engagement is important. The students thought that relatedness, to their peers and coaches is a big part of it.

Shiyuan College of Nanning Normal University is doing a job when it comes to sports. They have sports

competitions between classes. They also have sports clubs like a running club and a volleyball club. The college arranges for students to train together for team sports. The gym is a place to be. Older students help younger students learn sports skills. All of this helps students get to know each other through sports. It also helps students feel less stressed. Shiyuan College of Nanning Normal University is really good at making sports a fun thing to do. Sports, at Shiyuan College of Nanning Normal University bring students together. The college should keep doing things that help students connect with each other. They should have sports events where students from different classes or majors can play together. It would be an idea to start a "sports buddy" program. This program would pair students who like the sports. This will help students feel like they are part of a sports community. It will be good, for their mental well-being. The college should do these things to make the sports community stronger and to help students feel better. The sports community is important. The college should keep working on it.”.

Level of mental well-being among university students in Nanning City

The students’ level of mental well-being is a measure of students’ multidimensional capacity to: effectively navigate academic and personal challenges and establish and maintain meaningful interpersonal relationships as measured by a 25-item questionnaire with five dimensions. Results are presented in Table 5,

The information we have says that university students in Nanning City are doing well when it comes to their mental health. On average they score 4.10. Most students score between 3.46 and 4.74. This means that students in Nanning City generally have mental health in all areas including feeling happy being interested, in things having good relationships finding meaning in life and achieving their goals, which are all part of the PERMA model of mental health. Positive Emotion, Engagement, Relationship, Meaning and Achievement that was talked about by Seligman in 2011.

Positive Emotion. Students feel very good about things. They are happy and thankful. They think good things will happen. This means they are usually cheerful and they like the things in life. It is very important for people to feel this way because it means they are mentally healthy and strong. When students do sports and other physical things they feel happy. This makes them feel better overall. Positive Emotion is a part of this. Students have a lot of Positive Emotion, which's great, for their mental health. When students play sports they like they usually feel happy. This is good for their health. Sports can make students feel better about themselves. For instance students who play sports they enjoy can have a lot of feelings. These feelings are good, for the students mental health.

Engagement. Students are really into what they do. They show a lot of enthusiasm and energy for their activities. On a scale this enthusiasm is very high with a score of 4.42. This means that students are very focused and excited about what they're doing. They seem to enjoy their studies and the things they do outside of class. This is a thing because when students are engaged they are happier and less stressed. Some researchers, Liu, Chen and Wong found this out in 2024. They saw that students who are really, into their schoolwork or sports tend to be more well-rounded and less burned out. So it is likely that students who are engaged in general will also be engaged in sports. Being really into sports can affect how you feel inside. When students are totally into sports they might find it easier to focus they get really excited. They feel like they are a part of it which can all help with feeling better, about yourself. Sports can really help with well-being.

Relationships. We found that people have strong connections with each other like with friends, family and teachers. The average score for relationships was 4.45, which's very high. This means that people trust and care about each other a lot. When we have relationships it helps us feel safe and not so anxious or stressed. This is what Keyes said in 2020. Other people like Raimundi, López and Ortega also found this to be true in 2024. They said that having relationships, with others makes us feel more stable and happy especially in university settings. Relationships are also very important when it comes to sports. Team sports for example need people on the team to get along. When team members have relationships with each other it helps them deal with stress and feel better about themselves. Team sports can really help students feel good about their lives because good relationships with teammates are important for students mental health like good relationships are important in other areas of life. Team sports and the relationships that come with them can make a difference, in students overall mental health, including team sports.

Table 5
Level of Mental well-being among university students in Nanning City

Dimensions/Indicators	Mean	SD	Interpretation
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<i>Positive Emotions</i>			
1. Positive feelings come to me easily.	4.60	.681	Strongly agree.
2. I am comfortable and happy with my life.	4.57	.684	Strongly agree.
3. I take pleasure in the things I do.	4.54	.694	Strongly agree.
4. I have hope for the future.	4.39	.775	Strongly agree.
5. I am appreciative of the positive aspects of my life.	4.48	.694	Strongly agree.
Factor mean	4.25	.716	Very High
<i>Engagement</i>			
1. My involvement in the activities I do is intense.	4.46	.722	Strongly agree.
2. I'm energized and enthusiastic about life.	4.50	.695	Strongly agree.
3. I have the ability to concentrate & focus on my work.	4.50	.702	Strongly agree.
4. I give my all to what I do.	4.50	.702	Strongly agree.
5. When I'm participating in my activities, I forget the time.	4.16	.916	Strongly agree.
Factor mean	4.42	.745	Very High
<i>Relationship</i>			
1. I have deep connections with other people.	4.45	.755	Strongly agree.
2. My friends and family give me encouragement	4.38	.714	Strongly agree.
3. My relationships have a positive impact on me	4.46	.742	Strongly agree.
4. I interact with others in an honest and open manner.	4.46	.715	Strongly agree.
5. I respect and trust everyone I come in contact with.	4.52	.665	Strongly agree.
Factor mean	4.45	.718	Very High
<i>Meaning</i>			
1. I have a purpose and significance in my life.	3.70	.503	Agree.
2. My life is headed in the right direction.	3.72	.490	Agree
3. I lead a happy life.	3.68	.549	Agree
4. I am conscious of my advantages & disadvantages.	3.65	.547	Agree
5. I approach life with an optimistic outlook.	3.72	.522	Agree
Factor mean	3.69	.522	High.
<i>Achievement</i>			
1. I've reached significant life milestones.	3.70	.532	Agree
2. I am proud & satisfied of my accomplishments	3.75	.468	Agree
3. I am quite clear about what I want to do in life.	3.74	.459	Agree
4. I have the drive to complete difficult objectives.	3.62	.588	Agree
5. In pursuing my objectives, I am tenacious	3.75	.468	Agree
Factor mean	3.71	.503	High
Grand mean	4.10	.641	High

Note: n=200. Legend: 1.00 – 1.80=Strongly Disagree/Very Low, 1.81 – 2.60=Disagree/Low, 2.61 – 3.40 Neither Agree nor Disagree/Moderate, 3.41 – 4.20=Agree/High; 4.21-5.00=Strongly agree/Very High.

Meaning. Students think that they have an idea of what they want to do with their life. They agree that they find

purpose and direction in life. The students have given this a rating of 3.69 out of a score. This is a high score.. It is a little lower than what the students gave to other questions. This might mean that the students feel like they know what they want to do. They are still trying to figure out what they want to do with their life in the long run. They are still trying to figure out what is really important to them.

According to Steger, who wrote about this in 2019 finding meaning in life is something that people are still working on when they are adults. Steger says that finding meaning in life is a part of being happy and doing well in school. Finding meaning in sports can be a big motivator for students. Sports can help students find purpose and direction in life. The meaning that students find in sports activities can be a motivator, for them. For example if students think that sports are a way for them to grow as a person learn things or help their team win it makes playing sports more important to them. This feeling that sports are important can make students feel better, about themselves because they really care about the things they do when they think these things are important. Sports can make students feel happy and excited when they are doing something that matters to them.

Achievement. Students think they are very good at achieving their goals and they do not give up easily. They got a score of 3.71 out of something which's really high. When students do well they feel good about themselves and happy with their life. Some people named Datu King and Valdez said that doing well in things makes people feel better because they feel capable and confident. Achievement is a deal. It is important for feeling good about yourself. When you do your best win something or get good at a sport you feel like you have achieved something. Achievement is something that can make you feel happy and good, about yourself. Playing sports can make students feel really good about what they have done. This feeling can help students think better of themselves and feel inside. It is what the paper is talking about which is how playing sports affects how people feel mentally. The paper wants to know how sports can make people feel better, about themselves and have mental well-being. Sports can really help with well-being.

Nanning universities are really good for the mind. They help students feel happy and supported. The people at Nanning universities are nice. They care about each other. Nanning universities should keep doing things that help students deal with their emotions. They should also have programs that help students do well in school and in life. Nanning universities are doing a job of helping students feel good about themselves. They should keep doing things like this to help students, at Nanning universities.

Stress Level of the Students

Students' Stress level was measured using the questionnaire and the results are shown in Table 6.

Among the indicators, the highest mean ($M = 3.80$) shows that students are often upset by unexpected events, reflecting how sudden or unpredictable circumstances trigger stress reactions. Meanwhile, they fairly often feel nervous and stressed ($M = 3.50$) and sometimes feel unable to control important things in their lives ($M = 3.50$).

On the other hand, moderate scores on coping-related items ($M = 3.30$ – 3.43) indicate that students only “sometimes” manage stress effectively—such as coping with life changes, feeling confident about handling personal problems, or feeling “on top of things.” Kaur, G., & Saini, R. (2022). found that students exhibit fluctuating stress levels and only moderate coping capacities, echoing your result that students “sometimes” manage stress effectively. They emphasized the role of resilience- building and support services in promoting mental well-being. In sum, this pattern suggests that students experience stress moderately and inconsistently manage it. They can handle routine stressors but still struggle with unexpected or uncontrollable situations.

Table 6
Stress level of the Students

Indicators	Mean	SD	Description
1. In the last month, how often have you been upset because of something that happened unexpectedly?	3.80	0.407	Fairly Often

2. In the last month, how often have you felt that you were unable to control important things in your life?	3.50	0.509	Fairly Often
3. In the last month, how often have you felt nervous and “stressed”?	3.50	0.682	Fairly Often
4. In the last month, how often have you dealt successfully with irritating life hassles?	3.40	0.498	Sometimes
5. In the last month, how often have you felt that you were effectively coping with important changes that were occurring in your life?	3.30	0.466	Sometimes
6. In the last month, how often have you felt confident about your ability to handle your personal problems?	3.43	0.504	Fairly Often
7. In the last month, how often have you felt that things were going your way?	3.30	0.466	Sometimes
8. In the last month, how often have you found that you could not cope with all the things that you had to do?	3.30	0.466	Sometimes
9. In the last month, how often have you been able to control irritations in your life?	3.37	0.669	Sometimes
10. In the last month, how often have you felt that you were on top of things?	3.33	0.479	Sometimes
11. In the last month, how often have you been angered because of things that happened that were outside of your control?	3.37	0.490	Sometimes
12. In the last month, how often have you found yourself thinking about things that you have to accomplish?	3.50	0.509	Fairly Often
13. In the last month, how often have you been able to control the way you spend your time?	3.23	0.626	Sometimes
14. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?	3.37	0.490	Sometimes

Factor Mean	3.40	0.204	Sometimes
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.Legend: 1.00-1.80=never; 1.81-2.60=almost never; 2.61-3.40=sometimes; 3.41-4.20=fairly often; 4.20- 5.00=very often

This is characteristic of college students who juggle multiple roles, academic demands, and social pressures. The study of Al-(Ateeq, D. A., Aljhani, S., & AlEesa, D., 2020) revealed that university students frequently experience moderate levels of stress mainly due to academic pressures and lack of control over outcomes, aligning with the current findings that students "fairly often" feel nervous and stressed. The overall mean factor of 3.40, with a standard deviation of 0.204, implies that students "sometimes" experience stress over the last month, so they encounter stressors from time to time but not constantly or overwhelming for most.

Overall, students report a moderate level of stress: repeated and bothersome but bearable tension. While students can be resistant to regular hassles, they become vulnerable in case of sudden or uncontrollable events. These findings suggest the requirement for systematic stress management programs, psychosocial support mechanisms, and academic practices that would help students to manage their emotions, maintain well-being, and achieve academic success.

Relationship of Well-Being with Sports Engagement and Stress

The study assumed that well-being is influenced by sports engagement and stress. The Pearson r was used to determine the level of correlation of the two pairs of variables as shown in table 7.

Engagement and Mental Well-Being. The table shows that the connection between sports and mental well-being is really important. It looks at things like feeling good being engaged having friends finding meaning and doing well. The numbers in the table say that sports are connected to these things. This connection is strong. We can tell because the numbers are then .05, which is a special number that tells us if something is important or not. So we know that sports are connected to feeling good being engaged having friends finding meaning and doing well.

Table 7

Relationships of students', mental well-being with stress and sports engagement

Variables	r value	p value	Decision	Interpretation
Engagement & Positive Emotions	.728	.000	Reject Ho	Significant
Engagement & Engagement	.672	.000	Reject Ho	Significant
Engagement & Relationship	.679	.000	Reject Ho	Significant
Engagement & Meaning	.674	.000	Reject Ho	Significant
Engagement & Achievement	.744	.000	Reject Ho	Significant
Engagement & Mental Well-Being	.503	.005	Reject Ho	Significant
Stress & Positive Emotions	.156	.410	Fail to reject Ho	Not significant
Stress & Engagement	.219	.246	Fail to reject Ho	Not significant
Stress & Relationship	.303	.144	Fail to reject Ho	Not significant
Stress & Meaning	.255	.174	Fail to reject Ho	Not significant
Stress & Achievement	.239	.204	Fail to reject Ho	Not significant
Stress and Mental Well-Being			Reject Ho	Significant

Note: Significant if p value is $\leq .05$. Pearson r interpretation: A value greater than .5 is strong (positive), between .3 and .5 is moderate (positive),

This is a thing, for students who play sports. Sports participation and mental health are connected in a way. The connection is very strong and very positive. Sports participation is connected to the health of students. When students take part in sports it is really good for them if they have a lot of Positive Emotions. They also need to have Engagement

and a good Relationship with their teammates. Having Meaning and Achievement in sports is important too. The more students have all these things the better their mental well-being will be. This is what it means for students who participate in sports. The student's mental well-being is better when they have a lot of Positive Emotions, Engagement, Relationship, Meaning and Achievement, in sports.

Students sports related mental health is affected by an important thing. When students play sports their mental health is connected to these things. Positive Emotions make sports more fun for students. Sports is more enjoyable when students have Positive Emotions. Engagement is about how students love playing sports. It shows how much students care about sports activities. Relationship is about the friends students make when they play sports. Students build Relationship with students during sports. Meaning is what makes sports participation worthwhile. It gives students a reason to play sports. Achievement is the feeling students get when they do well in sports. It is the sense of accomplishment that students feel when they achieve something in sports. Students feel happy when they have Achievement, in sports. When students play sports it is about how they feel. The experience of sports is connected to the way students feel about themselves. Students who have feelings when they play sports really get into the game make good friends find something they like about sports and do well in sports are likely to have better mental health. Sports can affect the being of students in a good way. Students who have experiences with sports are more likely to have good mental health because sports can help students feel happy and good, about themselves.

The study by Smith and Johnson in 2023 found that physical activities with affect and social interaction are really good for peoples mental well-being. This means that when people have experiences and make friends while playing sports it can be a great way to help their mental well-being. The mental well-being of participants in the study by Smith and Johnson was improved when they had affect and social interaction in physical activities. So sports can be a way to promote mental well-being by fostering positive experiences and social connections, in sports like the ones studied by Smith and Johnson. A study by Brown and Lee in 2022 found that feeling like you have achieved something and have a purpose when you play sports is really important for feeling good about yourself and reducing anxiety in students. This is similar to what we found out that Meaning and Achievement are connected to how students feel when they participate in sports, which shows just how important Meaning and Achievement are for helping students feel good mentally. Meaning and Achievement really matter when it comes to promoting well-being, for students who participate in sports.

Stress and Mental Well-Being. The results tell us that Stress does not have an impact on Mental Well-Being. This includes things like feeling good being engaged, having relationships finding meaning and achieving things. We looked at the numbers. They show that Stress is not really connected to any of these things. We made this decision because the numbers were not strong enough to say that Stress really affects Mental Well-Being. So we decided not to say that Stress has an effect on Mental Well- Being. We came to this conclusion because all the numbers we got were greater, than 0.05, which means we cannot say that Stress affects Mental Well-Being. Stress and Mental Well-Being are just not connected in a way.

Stress levels and positive emotions are related in a way. The connection between the two is not very strong. This means that when stress levels go up people still feel much the same amount of positive emotions. So stress does not really affect how happy or optimistic people feel.

There is also a connection between stress and how engaged people are. This connection is not strong either. Stress and engagement are related. Only, in a small way. Stress does not have to be a thing for people who are trying to stay engaged. Some students actually think that a little bit of stress can be a thing because it motivates them to keep going and be productive. When we look at how stress affects relationships we see that there is a connection but it is not strong enough to really matter. The numbers show this. The connection is small with a rating of .303 and a probability of .144. This means that stress does not really have an impact, on how people get along with each other. People seem to be able to keep their friendships and relationships going even when they are stressed.

The connection between stress and feeling like your life has a purpose is not very strong. This means that stress does not really affect how people feel about their life having meaning. People can still find meaning. Know what they want to do even when they are stressed. They might be able to do this because they are strong and can deal with situations.

The relationship between stress and feeling like you have accomplished something is also not very strong. This means that stress does not really change how people feel about what they have done. People still feel good, about what they have accomplished no matter how stressed they are. Stress does not seem to affect how people feel about what they have achieved.

The connection between stress and mental well-being is not very strong. It is a positive connection. When we look at the numbers we see that the relationship between stress and mental well-being is not very tight. The score for well-being is made up of several parts, such as positive emotions and engagement and meaning. When we put all these parts together into one score for well-being it can get a little messy and harder to understand. At the same time it can also make the score more reliable. The score for well-being includes things like positive emotions and engagement and meaning. When we combine all these things into one score it can be a little confusing. It can also make the score more reliable which is a good thing, for mental well-being. When you look at each part of the test on its own it does not seem to be connected to stress in a way. When you add up all the parts or find the average you start to see a connection to stress. This is because all the parts are related to each other.

Overall the connection between each part and stress is not very strong. In fact it is so weak that it does not really mean anything. This tells us that stress is not a factor in how well the people in this study are doing. The stress levels of the respondents do not seem to be affecting their being, in a major way.

The Mediation Analysis

The mediation analysis examined whether stress mediates the relationship between engagement and well-being among the respondents.

Table 8
The Mediation Estimates and Path Estimates

Mediation Estimates

Effect	Label	Estimate	SE	Z	p	% Mediation
Indirect	$a \times b$	0.1153	0.0767	1.503	0.133	65.4
Direct	c	0.0610	0.1345	0.453	0.650	34.6
Total	$c + a \times b$	0.1763	0.1217	1.448	0.148	100.0

Path Estimates

			Label	Estimate	SE	Z	p
Engagement	→	stress	a	0.176	0.122	1.45	0.148
stress	→	well-being	b	0.320	0.188	1.70	0.088
Engagement	→	well-being	c	0.361	0.129	2.79	0.005

Path Estimates. The path from Engagement → Stress ($a = 0.176$, $p = 0.148$) indicates that higher engagement is associated with slightly higher stress, but the effect is not statistically significant ($p > 0.05$). This may suggest that while engaged individuals experience some stress due to active participation and workload, this stress level is not consistently different across respondents. The path from Stress → Well-being ($b = 0.320$, $p = 0.088$) shows a negative trend—higher stress tends to reduce well-being—but again, the relationship is not statistically significant, though it approaches the 0.05 level ($p = 0.088$).

The direct relationship between Engagement $\rightarrow$ Well-being is statistically significant ($c = 0.361, p = 0.005$), implying that it increases well-being irrespective of the levels of stress. This indicates that those people are generally mentally sound and have good emotional well-being. In the study conducted by Li, Chen, and Zhou among university students in China, it was found to positively correlate with well-being and even strengthened those strategies for reducing stress, though not completely mediated by stress.

Mediation Estimates. The result of the indirect effect ($a \times b = 0.1153, p = 0.133$) shows that stress partially mediates engagement and well-being. However, this is not significant. The percentage of mediation is 65.4%, which supports that in reality, stress is about two-thirds of engagement in relation to well-being, in spite of it not being significant. The total result ($c + a \times b = 0.1763, p = 0.148$) shows that both engagement and well-being are positive but yet again nonsignificant at 0.05 significance. Hu et al. (2022) mentioned that stress deserves special concern in engagement since it may reduce its advantages if it is inadequately handled.

On the whole, it is clear that findings indicate engagement has a positive direct influence on well-being, but stress does not have any significant mediating influence on this process. This is because employees/students with high engagement feel high on well-being because of their satisfaction, motivation, and attainment that results due to engagement in their work/studies, and this is irrespective of stress having any influence on this association. Bakker & Albrecht (2018) have made it clear that engagement is an essential predictor in measuring well-being in employees or students, as it boosts positive affect and energy in employees/students.

The finding would entail that, because engagement has a direct relationship with well-being, it is important for educational and work settings to continue to promote it through significant activities, recognition, and supportive contexts. But it is vital to consider workload, ensuring that engagement does not turn to stress. The finding of the partial but non-significant mediation of stress might imply that stress reduction still has a possible indirect positive effect on the positive effect of engagement on well-being. Wellness activities, mindfulness, and stress counseling might have promoted an indirect effect. Salmela-Aro & Upadyaya (2020) explained that a high engagement is a predictor of higher life satisfaction, academic well-being, while stress is a moderator.

Output of the study

On the basis of the findings from this study, an evidence-based Sports Engagement Plan. has been created specifically for Shiyuan College, Nanning Normal University students. The plan incorporates important determinants in sports engagement, including guiding factors for increasing sports engagement to achieve autonomy, competence, and relatedness for students.

The result also provides a matrix consisting of certain actions to be done during the implementation process. The purpose of the actions is to encourage students to believe sports are good for them and to ensure students remain mentally healthy as well. The process to ensure it happens is going to be shared with the teachers and school administrators. This allows the findings from the study to finally make an impact on the students within the school. The students attending the school are going to gain benefits from the study, concerning sports participation and mental health. The sports participation and mental health study is going to aid students.

Conclusion:

The study shows that playing sports is really good for students mental health. Sports engagement is very important for making students feel better. Stress is also a factor that can affect how sports engagement helps students. When students play sports they usually feel more emotionally stable and able to handle situations.. If they are stressed out playing sports might not help as much. On the hand students who play sports and can manage their stress tend to be happier and more satisfied with their lives. Sports engagement helps students feel more balanced and optimistic, about life. The way these things work together shows that we need to make sure mental health is a part of sports programs. Sports are not just good for our bodies. Also for our minds. Sports can be a way to deal with stress and hard times both mentally. We should recognize that sports participation is good for our health just like it is, for our physical health.

The study shows that getting people into sports is not about getting them to exercise it is also a good way to help with

mental health and emotional strength. Schools should make sports programs that're all about the students and help them feel in charge good at things and connected to others. These programs should also teach students how to deal with stress. If schools do this they can make a place where students can do well in all areas of life. Physically with friends and in their minds. Sports engagement is important for students and schools should make sure they have programs for sports engagement. This way schools can help students, with sports engagement. Also help them with their mental health and emotional resilience through sports engagement.

The results show that exercise is really good for students. When students play sports they become good at them. They also feel happy and strong inside. Sports help students feel like they have a reason to do things. They can handle tough situations. This is true not when they are playing sports but also in other areas of their life. Sports are very good, for the students.

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