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Comparative analysis of sport psychology of sportsman in information technology and human psychology

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Abstract
The purpose of this research is to describe the comparative analysis related to the sport psychology of sportsmen in information technology also that human psychology. This research was conducted in china for deermine. The research study used specific questions related to the variables. In this research, the sports psychology of sportsmen, information technology, and human psychology are all considered indicators. For measuring, the study used AMOS and smart PLS software and ran different results, including minimization history, the assessment of normality, correlation coefficient, covariance, significant analysis, and total effects; it also describes the graphical analysis for measuring the relationship with each other. According to the result, information technology shows positive and significant relation to the sports psychology of sportsmen. On the other hand, information technology shows that harmful, but it's a substantial effect on human psychology. Therefore, sport psychology represents direct and significant relation with human psychology.
Keywords: Sports Psychology of sportsman (SPS), Information Technology (I.T.), Human Psychology (H.P.), AMOS software
Research Type: Research Paper

1. Introduction

The field of sports has changed drastically in recent years. The revolution of sports is because of the significance of information technology in sports. Today's sport is much more technology-based. This technology base sport helps the people of the modern age to better connect with it. The sports field has become well organized and well-developed because of technology (Price et al., 2022). The sports industry has also broadened the horizon of many sports and their related fields. The popularity of sports in the present era is increasing daily, and it is because of the drastic change in this field over the past years. The study of sports is called sport psychology and tells us about how a particular sports influence the athlete (Popovych, Kurova, et al., 2022). Sports directly or indirectly affect human health and the human body to a great extent. Sport is a type of physical exercise that offers several health benefits to humans, especially to sports athletes. Most sports athletes are physically fit because of the sports that they play. Sports is such a physical education that also provides mental health benefits (Hao, 2021).

The effect of sports on athletes is studied under the category of sports psychology. Sports psychology helps the athlete overcome his flaws and to focus on his game. The advantages of good sports psychology include improvement in the athlete's performance and improvement in the athlete's ability to cope with pressure during the game. The sport psychologist or coach trains players to cope with all the physical and mental challenges they face while playing sports (Dorsch et al., 2022). Sports psychologist helps the players improve their playing abilities, help them concentrate on their game, and also teach them to enjoy the sport they play. The players taught about sports using sport psychology can understand various sports tactics more quickly than the players trained using the old training methods. The three significant theories also fall under the subject of sport psychology. The first theory is trait theory. This theory is based on training the athletes to develop optimistic behavior in sports and no sports situations. The second theory is situational theory. This theory mainly focuses on teaching the athlete to adopt various styles during various circumstances and to deal with all problems maturely (Chiu et al., 2022). The third theory is the interactional theory .this theory focuses on training the athletes in the best interactive behavior they could adopt while playing various sports. All these three theories of sports psychology greatly help prepare the athlete to play multiple sports.

Sports psychology also focuses on the physical health and maintenance of players. For this purpose, athletes are given motivational lectures to keep them motivated. Sports management system establishment is also made in sport psychology system. This management deals with the issues of athletes at individual and group levels (Popovych, Borysiuk, et al., 2022). One more role of the sport management system is to focus on the developmental process of every athlete. The personality grooming of athletes is also the duty of the sports management system. All these sports management system duties help build a better sports psychology among the players. The coaches of various sports help the process of sport psychology to operate

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smoothly. Coaches mainly guide the athletes in sports psychology techniques. These techniques include intrinsic motivational methods, goal-setting, self-grooming, and relaxation techniques (Ryba et al., 2022). All these techniques help the athlete to stay focused and active. During the Olympics game in Begin, the sport psychology team of the Begin Olympics and the coaches provided all the psychological aid to the athletes before the game so that the athletes could concentrate on their game and stability (Talha et al., 2022).

Various information-based technology techniques are used in the field of sport psychology to improve the overall system of sports. The most crucial technological process used in sports psychology includes electroencephalography as well as event-related potential techniques. These two techniques improve the mental and health state of players by detecting the effect of physical exercise on players. There is a lot of competition in various sports around the globe and maintaining a positive attitude among players of different sports is essential (Bloom et al., 2022). The positive attitude among the athletes is developed using the sports psychology technology-based techniques by the sports coaches and management. Many more technology-based psychology systems have been designed recently that improve athlete behavior. These newly developed technologies include Brain imaging technology that provides information about the mental stability of athletes (Heilmann et al., 2022). In addition, heart rate analysis technology helps determine the athlete's heart rate. Athletes undergo any physical or psychological health problems easily detected through brain imaging and heart rate-detecting technologies. All these technologies related to sport psychology are involved in the betterment of athletes in one or either way (Li et al., 2021).

Monitoring sports psychology in various sports through the technology-based system is a trend of the 21st century. This trend maintains the systematic and directional working of the sports psychology system. Different sports psychology technology-based websites are available online for athletes so that they can improve their abilities on their own. These websites consist of a large number of techniques and training programs for the devolvement of athletes' sport psychology (Simons & Bird, 2022). These websites provide valuable and knowledgeable information about modern techniques to improve athlete sport psychology and are a source for polishing athletes' skills. Many sports institutes all over the world train their athletes in all the sports psychology techniques at a fundamental level so that they do not face any problems when they become professional athletes. The most crucial benefit of sport psychology and its technique is improving human psychology (Keegan et al., 2022). In the modern age of science and technology, humans have adopted positive psychological attitudes to compete with the world. The negative psychology that causes depression and other mental problems has been replaced by positive psychology in the 21st century.

This research paper is divided into five portions: the first part describes the introductory section related to the Comparative analysis of sport psychology of sportsman in information technology and human psychology. This part represents the objective of the research study and research questions about topics. The second portion represents the research review and describes the hypothesis between dependent and independent variables (Zhang, 2021). The third part describes the research methodology, research participants, data collection process, research tools, and techniques and also presents the theoretical framework between dependent and independent variables. The fourth section describes the result and descriptions related to the Comparative analysis of sport psychology of sportsman in information technology and human psychology and runs informative results. Finally, the last portion represents the summary of the overall research study and also provides some recommendations about the research.

1.1. Research objective

The research paper explains the need for information technology-based applications to improve the working sport psychology system. And the effect of technology-based sports psychology on sportsmen and human psychology has also been discussed in their research paper.

2. Literature Review

Scientific research in sport psychology extends back almost two hundred years. Understanding how psychological strategies can enhance athletic performance has been a long-standing objective since the program's start. In this research paper, the comparative analysis of the sport psychology of sportsman between human psychology as well as information technology has been investigated (Trottier & Robitaille, 2014). It was claimed that there seems a lot of research about the role of information technology in the sports sector highlighted that information technology has a significant positive influence on sports industries, sports psychology, athlete's performance, and the overall sports sector (García-Lanzo et al., 2020). From recent many years, the applications of information technology have been increasing and providing great benefits to sports psychology by employing various emerging techniques, including 3D image technology, virtual reality, web-based applications, etc., (Cottrell et al., 2019). Thus, many other electronic devices were also invented, which greatly assist in controlling and maintaining health-related problems. These devices can monitor health conditions effectively, which in turn helps to prevent problems related to human health, especially in sports (Henriksen et al., 2020). Moreover,

the concept of electronic sports or e-sports has also increased with the fast development of I.T. (Gupta & McCarthy, 2021). The researcher highlighted that sports psychologists have been researching to extend support to improve performance in the rapidly growing competitive gaming competition industry referred to as e-sports or electronic sports. But, psychologists seem unsure if e-sports falls under their competence, and athletes (game players), as well as coaches, remain unaware of how psychologists might assist them in improving their performance (Bird, 2020). The researcher presented methods of improving sport psychology and human psychology based on information technology, which also helps to enhance the performance of athletes during play (Araújo et al., 2020). It was claimed that sports psychology and human psychology are correlated and have a direct association between them (Stragier et al., 2018). Apart from this, many other scholars also highlighted the concept of human psychology and sports psychology and the applications of I.T. in the sports sector (Siekańska et al., 2021). It was examined that sports psychology as well as human psychology, provides not only physical advantages to human beings but also provides social as well as psychological benefits to society (Hahn, 2021). To investigate the comparative analysis of the sportsman in between sports psychology, human psychology, and I.T., research conducted detailed research by collecting sample data through a questionnaire survey method (Wadey et al., 2019). The results were obtained using various modeling analyses and smart software. It was revealed that it shows significant positive results and remarkably impacts life satisfaction, athletes' performance, and human psychology (Mosewich et al., 2019). Researchers also examined that the aim to improve sports psychology seems to be to help players succeed in their sport-specific environment by emphasizing their ability to develop resilience (Chiu et al., 2022). While the idea of wellbeing in sporting events focuses more on encouraging the development of life skills, human psychology, and good sports experiences among sportsmen through active engagement in physical activity and sports (Price et al., 2022). Furthermore, research conducted in both fields has tended to be conceptually ambiguous and context-specific (Moran et al., 2018). Hence, a more precise theoretical framework is needed on the global stage (Horn & Smith, 2018). In addition, it was highlighted that the objectives of utilizing various applications of information technology were to enhance the application scenarios of gesture recognition technology of moving targets utilizing HCI human-computer interaction and artificial intelligence (A.I.) in sports performance as well as to revolutionize and intellectualize the existing professional athletic training (Cosh et al., 2019). According to human and educational psychology, the author highlighted that sports skills are indeed a cognitive ability and a tacit knowledge of sports (Küttel et al., 2020). However, sports technology, communication, imagery, and other techniques serve as supplemental sports training tools (Bird et al., 2018). Many scholars researched the comparative analysis between I.T., sports psychology, and human psychology (Otte et al., 2020). The consequences of the research show that due to the significant insufficient and heterogeneity representativeness of the subject samples, it's indeed difficult to evaluate the findings of research that evaluated the personality characteristics of ineffective, average, and excellent sportsmen (Trotter et al., 2021). There were only minor disparities between groups of athletes with differing abilities, and the quality of the result was demonstrated (Kerr & Stirling, 2019). According to research, effective sport psychology and human psychology seem essential for improving athletic performance, well-being, and personal development. Information technology in this context has great advantages for sportsmen. It provides a better way to improve performance, motivations, attitudes, and emotions by training particular tips and tricks to sportsmen (Cogan, 2019). To comprehend the influence of human psychology and sports psychology, as well as spirituality, in exercise and sports performance and circumstances, several investigators have attempted to investigate the intersection of religion, human philosophy, sport philosophy, and other psychological dimensions (Dongoran et al., 2019). The research on human and sports psychology paid little emphasis to spiritual wellbeing. It highlighted that it is essential for athletic success and serves as a defense against several stressors and negative behaviors. Many scholars claim that sports have become actively promoted across all socioeconomic groups and are closely linked to people's daily lives and social interactions (Romanenko et al., 2020). Therefore, there seems to be a great influence of human psychology on sportsmen's performance. Traditional sports evaluation and training techniques almost exclusively rely on coaches for effective training, which has several drawbacks (Hansen et al., 2019). Firstly, some sportspeople cannot receive in-depth advice due to the significant shortage of competent trainers caused by the growing number of athletes. Second, since coaching decisions are frequently based on experience and lack of science, they cannot always be reliable. Therefore, the researcher highlighted that with the emergence of the various applications of information technology, these challenges can be managed and controlled effectively, which in turn helps to promote the sports sector. So, the researcher examined that many developing countries have been implementing the applications of information technology in their sports sector to provide great benefits to their sportsmen and enhance performance during play. It is also claimed that both human and sports psychology have a direct association, and it was essential to improve human and sports

psychology to get desired results from sportsmen.

2.1. Hypothesis Development

H1= There are positive relation between sport psychology of sportsman in information technology.
H2= There are significant relation between sport psychology of sportsman in information technology.
H3= there are positive relation between sport psychology of sportsman in human psychology.
H4= There are significant relationship between sport psychology of sportsman in human psychology.
H5= There are negative relation between sport psychology of sportsman in human psychology.

3. Research Methodology

This research study describes the Comparative analysis of sport psychology of sportsman in information technology and human psychology. For determining the analysis, open-ended and closed-ended questions were used because this research study depends upon primary data. Sport psychology of sportsman is the independent variable, and information technology also human psychology are both dependent variables. For measuring, this research used AMOS and smart PLS software and ran different results related to the variables.

3.1. Research Tools and Techniques

For determine the Comparative analysis of sport psychology of sportsman in information technology and human psychology used AMOS and Smart PLS software and run informative results included indicator correlation coefficient, the total effects, significant analysis, assessment of normality, minimization history, correlation coefficient, covariance also describe the histogram and state related to the variables. The smart PLS Algorithm model also present for measure the comparative analysis with each other.

3.2. Sport psychology of sportsman

Sports psychologists aid athletes in sustaining high levels of performance by giving psychological health a high emphasis. They also take into account how participation in sports affects qualities like collaboration and self-control. For example, competitors are under a lot of physical and mental strain. They are aware of the pressure that coaches, teammates, and even themselves put on them. This ongoing tension might cause competitors to lose interest.
If not handled, it could lead to significant issues with both physical and mental well-being. Sports psychologists use a sustainable approach to each client's health. They consider both a person's physical capabilities and psychological challenges. They then explore for methods to simultaneously improve athletic prowess and mental resilience. Sports psychology enhances the whole person by combining psychological and physical performance (Chu & Zhang, 2019). Athletes can also benefit from the help of sports psychologists by increasing effectiveness. By utilizing a number of psychological strategies, such as visualization, personality, and relaxation techniques, athletes may overcome challenges and realize their full potential. Adapt to the demands of the competition. The sport psychology is main independent variable for measuring the research Comparative analysis of sport psychology of sportsman in information technology and human psychology.

3.3. Information Technology

Information technology uses both hardware and software to do the fundamental tasks that people need and use on a daily basis. Before incorporating it into the setup or creating a new design while working with an organization, the majority of IT experts show the most recent technology accessible to do their essential tasks. The vital professional area of information technology is undervalued in today's environment. Unexpectedly, information technology is highly important. Information technology increases output and aids in the growth and development of the business and commercial sector. The length of time it takes for various sectors to generate revenue has decreased as a result of information technology advancements. Effective communication, digital storage, and protection are all offered (Wachsmuth et al., 2022).
To do the work, information technology needs computer software. IT is connected to several international organizations using computers. It helps the staff keep track of their numerous customers from various firms. It is beneficial for patients to be able to visit doctors online and receive advice on their health difficulties. Additionally, the system has the ability to accurately manage patient records.
Information is gathered through system analysis, programming/coding, data transformation, data communications and storage, and programming/coding. Even the education sector has seen a substantial upheaval with the introduction of information technology. Using computers, software, and the internet efficiently and getting the required outcomes from a business is significantly simpler. Businesses now provide virtual vaults, a novel form of storage that enables clients to keep or remove their documents. The IT division also provides a first-rate communication system. The information technology is main dependent for determine the Comparative analysis of sport psychology of sportsman in information technology and human psychology.

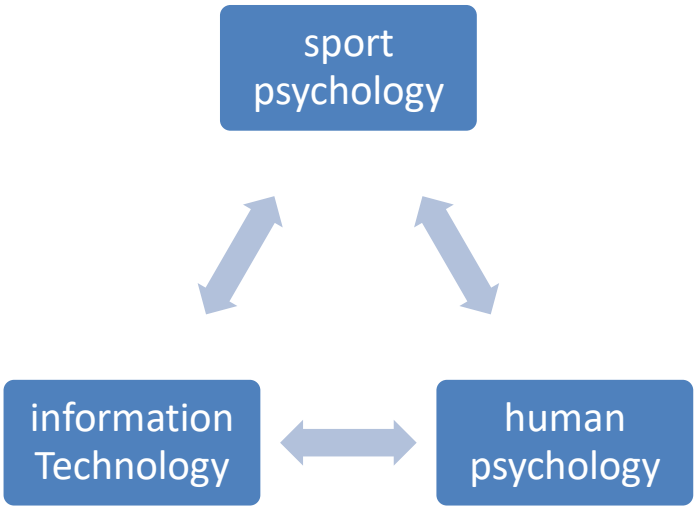
3.4. Human psychology

The study of the mind and behavior of humans is called human psychology. The broad definition may apply to the academic field of academic psychology or educational psychology, the professional field of clinical psychology, or the scientific enterprise of

research psychology. The scientific study of the mind and behavior is called psychology. The study and appreciation of the interactions between the mind, the brain, and behavior are of particular interest to psychologists. Psychology is classified as a "Hub Science" because of its connections to the social scientists, the health technology, and the educational sciences. Unfortunately, we are not entirely aware of how our brains function (Nagovitsyn et al., 2018). For example, they assist us in interpreting our environment, recognizing everyone and everything around us, and learning new information. But modern neuroscience and neuropsychology have come a long way in describing how our brains affect the things we do every day. The human psychology is another dependent variable for determine the Comparative analysis of sport psychology of sportsman in information technology and human psychology (Popovych et al., 2021).

Sport psychology of sportsman	Information technology	Human psychology
Sports psychology focuses on how physical exercise and mental well-being connect.	Information technology is the study of computers and any kind of communication that stores, accesses, analyzes, transfers, changes, and delivers information (I.T.).	Human behavior refers to an individual's lifetime capacity for and representation of ability to engage in social, cognitive, and physical activities.

4. Result and Descriptions



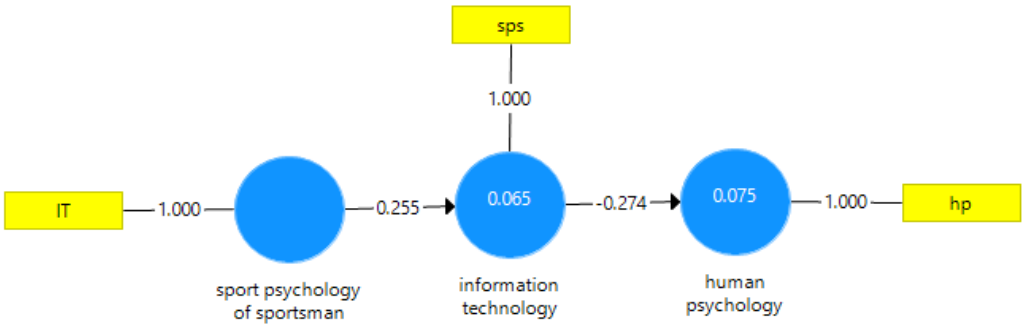
The above model describes the sport psychology of sportsman in information technology and human psychology.

4.1. Assessment of normality

Table-1

Variable	min	max	skew	c.r.	kurtosis	c.r.
Sport psychology of sportsman	1.000	4.000	.333	1.749	-.545	-1.617
Information Technology	1.000	5.000	.601	2.361	-.203	-.711
Human Technology	1.000	4.000	.291	1.697	-.595	-1.030
Multivariate					-5.739	-2.876

The above result determines the assessment of normality analysis result describe the minimum values, maximum values, skew values, kurtosis rate, and c.r rates of each variable for determining the Comparative analysis of sport psychology of sportsman in information technology and human psychology. The overall minimum value is 1.00; the maximum value is 5.000. The skewness rate of sport psychology of sportsman is 0.333, respectively, showing a positive normality assessment. The information technology shows that the skew value is 0.601, its c.r rate is 2.361 the human technology rate of skew is 0.291, respectively, showing a positive rate of comparison with each other.



The above model describes the Comparative analysis of sport psychology of sportsman in information technology and human psychology. Sport psychology shows that 25% is positive and significantly related to information technology. On the other hand, human psychology shows that the negative relation with information technology is -0.274. The 1.000 represent the significant effect between one variable to another variable.

4.2. Covariance's analysis

Table-2

	SPS	IT	HP
Sport psychology of sportsman	.660		
Information Technology	.100	.416	
Human psychology	.050	.056	.510

Condition number = 4.330
Eigenvalues
1.039 .874 .720 .631 .508 .312
Determinant of sample covariance matrix = .085

This research study determines the overall covariance analysis of each variable for determining the Comparative analysis of sport psychology of sportsman in information technology and human psychology. The covariance value between human psychology and information technology is 0.056, which means that 5% is significant with each other. The information technology shows that 0.100 rates of covariance with sport psychology the information technology represent the 41% covariance with each other. According to the result, its condition number value is 4.330 the overall determinants covariance matrix value is 0.085, respectively.

4.3. Correlations coefficient

	SPS	IT	HT
Sport psychology of sportsman	1.000		
Information Technology	.220	1.000	
Human Technology	.085	.074	1.000

Condition number = 3.259
Eigenvalues
1.360 1.299 1.064 .860 .816 .602

The above result represents the correlation coefficient of each variable, including independent and dependent variables. The sport psychology of sportsman considers 1.000 mean 100% significant correlation with other dependent variables. The information technology presents 0.220 positive rates of significantly with sport psychology of sportsman. The human psychology represents that 0.085 and 0.074 mean 8% and 7% positively and significantly correlated with each other according to the above result, its overall condition number is 3.259, and the eigenvalues are 1.360, 1.299, 1.064, 0.860, 0.816 and 0.602 respectively.

4.4. Minimization History

Table-4

Iteration		Negative eigenvalues	Condition #	Smallest eigenvalue	Diameter	F	N-Tries	Ratio
0	e	6	1	-.017	9999.000	22.970	0	9999.000
1	e	6	2	-.018	.599	22.034	30	1.164

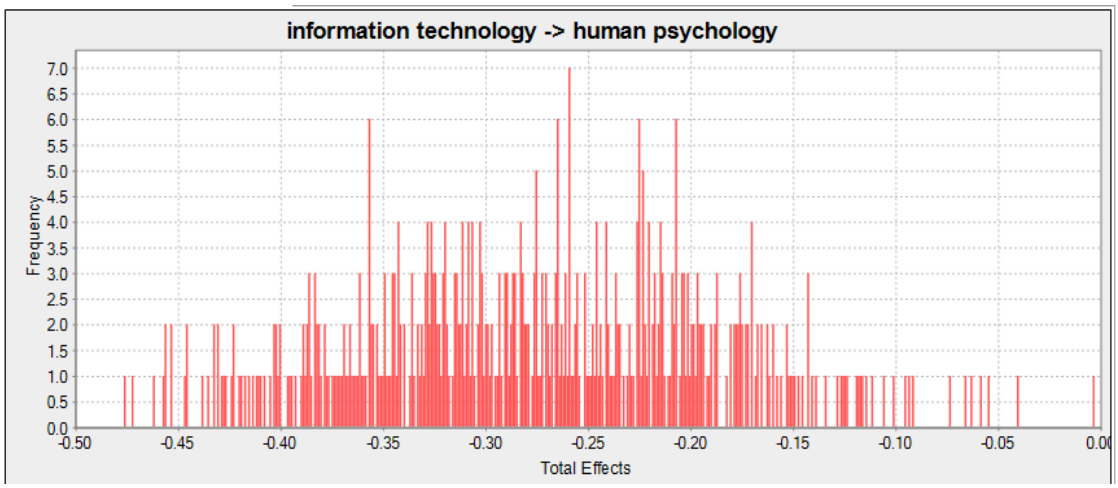
The above result describes the minimization history of the comprehensive research study. The result describes each iteration's smallest eigenvalue, diameter, F values, and ratio values. The smallest eigenvalue is -0.017 and -0.018. The diameter value is 9999.000 and 0.599. According to the result, its f value is 22.970 and 22.034, respectively. The minimization history shows that ratio values are 9999.00 and 1.164, all representing the positive and significant relationship between the sport psychology of sportsman in information technology and human psychology.

4.5. Significant analysis

Table-5

variables	Original sample	Sample mean (M)	Standard Deviation (S.D.)	T statistic	P values
Information Technology	-0.274	-0.276	0.085	3.206	0.001
Sport psychology of sportsman	-0.070	-0.071	0.040	1.764	0.078
Human psychology	0.255	0.252	0.106	-2.404	0.017

The above result represents that a significant analysis of each variable result describes all original sample values, the sample average values, the overall standard deviation rates, and the T statistic also present the p values of each variable. The information technology shows that the -0.274 rate of the original sample value, its standard deviation value is 0.085 representing the 8% deviation from the mean, its T statistic value is 3.206, and its significant rate is 0.001 positive and meaningful relationship. The sport psychology presents that positive and significant relation its rates is 1.764 and 0.078 shows 7% significant levels. Human psychology represents the original sample value of 0.255; its sample means the value of 0.252, and its standard deviation rate of 0.106 shows that 10% deviates from the mean. According to the result, its T statistic value is -2.404, and the p-value is 0.017, which shows that negative. Still, there's a significant relationship between information technology and the sports psychology of sportsman.



The above graph represents the total effects related to the Comparative analysis of sport psychology of sportsman in information technology and human psychology. This graph represents information technology and human psychology. Its vertical side represents the frequency level, starting from 0.0 point and ending at 7.0 levels. The red bar lines represent the total effect between it and human psychology. According to the above graph shows a negative relationship between them.

4.6. Indicator Correlations

Table-6

Variables	No.	Missing	Mean	Median	Min	Max	Standard Deviation	Excess kurtosis	Skewness
Information technology	1	0	2.242	2.000	1.000	5.000	0.818	0.392	0.421
Sport psychology of sportsman	2	0	1.626	2.000	1.000	3.000	0.579	-0.700	0.283
Human psychology	3	0	1.505	1.000	1.000	3.000	0.657	-0.206	0.957

The above result represents the indicator correlation. It describes the mean values, median, minimum, and maximum rates. It also presents the standard deviation excess kurtosis and skewness rates of each variable for measuring the Comparative analysis of sports psychology of sportsman in information technology and human psychology. The overall minimum rate is 1.000 overall maximum rate is 5.00, 3.000, the missing values of each variable s is 0, and the median value is 2.000. the information technology shows that 0.818 rate of standard deviation its skewness rate is 0.421. the sport psychology of sportsman represents that 0.579 rate of standard deviation its skewness rate is 0.283 shows that negative value of S.D. Human psychology also indicates a negative standard deviation. Its speed is -0.206 its skewness rate is 0.957.

5. Conclusion

In conclusion, this investigation highlighted that, like many other fields, information technology has gained popularity in the sports sector and has been providing significant advantages to this sector to promote sportsmen performance which has also been associated with the country's economic growth. In this research article, we studied the comparative analysis of sport psychology of sportsmen in human psychology and information technology. For this purpose, we collected sample data through a questionnaire survey and investigated the results by implementing Smart PLS and AMOS software. By examining modeling analysis, we highlighted that information technology has a direct positive relationship with the sport psychology of sportsmen. Moreover, it is examined that both human and sports psychology correlate and serve as important factors for improving sportsmen's performance during play. Apart from this, various techniques of information technology, including V.R. virtual reality, 3D image technology, video training system, and e-sports, have been discussed in this paper. It is highlighted that the emergence of various information technology applications has changed the entire structure of the sports sector. It provides multiple applications to the sportsmen while training, playing, or learning essential tips and tricks to enhance performance, increase motivation, control anxiety and emotions, and improve overall sports and human psychology. This research study determine the comparative analysis between sport psychology of sportsman in information technology and human psychology. For analysis te results its concluded that the information technology positively lined with sport psychology of sportsman also that its significant relation between the. The information technology play vital role in sport psychology performance of peoples. The human psychology create negative relation with information technology but its significant relation between them. This research study accepted the hypothesis one, hypothesis two and hypothesis three H1, H2, its also accepted H4 but this research study rejected the H3 because there not any positive relation between information technology and human psychology.

Furthermore, sports have undergone significant development in the past few years. The importance of information technology in the world of sports has contributed to the progress of sports. Sports today rely on modern technology to a great extent. This technologically based sport makes it easier for everyday people to relate to. Technology has helped the sports industry become organized and well-developed.

Furthermore, information technology has made it easier to understand sports psychology effectively. In this comparative analysis, we compare the sport psychology of sportsmen with human psychology and information technology and find a positive relationship between them. It is examined that sportsmen can concentrate on developing sports skills and overcome their weaknesses with the help of practical human and sports psychology. The benefits of effective sports psychology include enhancements to an athlete's performance, motivation, attitudes, behavior, and emotions, and improvements to their capacity to handle pressure during competition by controlling the anxiety during the play. Apart from this, it is examined that improving human psychology is also essential to promote the sport psychology of sportsmen. In addition, the personality traits of sportsmen also influence the performance of athletes. This research provides a detailed review of the comparative analysis of the sport psychology of sportsmen and human psychology in the sports sector. Apart from this, the applications of information technology and many web-based application for the promotion of sportsmen performance and the development of the overall sports sector have been investigated in the paper. Thus, the findings are accurate and scientific, and they can help advance the conceptualization, sophistication, and uniformity of sports training while also demonstrating major practical applications.

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