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## THE IMPACT OF PHYSICAL ACTIVITY IN DEVELOPMENT OF COGNITIVE AND NON-COGNITIVE SKILLS OF PHYSICAL EDUCATION STUDENTS.

Mehwish Manzoor<sup>1</sup>, Muhammad Akram Ansari<sup>2</sup> & Javed Ali Soomro<sup>3</sup>

<sup>1</sup>Center of Physical Education, Health & Sports Science, University of Sindh Jamshoro, Pakistan

<sup>2</sup>Center of Physical Education Health & Sports Science, University of Sindh Jamshoro, Pakistan

<sup>3</sup>Center of Physical Education Health & Sports Science, University of Sindh Jamshoro, Pakistan

KEYWORDS	ABSTRACT
Physical Education, Physical Activity, Sports, Cognitive and Non-cognitive skills	This study aimed to find out the impact of physical activity in development of cognitive and non-cognitive skills of the physical education students. All male and female physical education students at northern Panjab were the population of current study. Thus, there is dire need to carry-out pragmatic research on theme of sports education and its relationship with cognitive and non-cognitive skills. The Likert scale was used for data collection which cover all aspect of sports and validity and reliability was done accordingly. The collected data was then put into SPSS to tabulate and arrange the data to attain the desired results. Findings of this study revealed that the score of participants and non-participants at both ends between male and female was different. Findings further revealed that the physical activity played a partial role between sports, cognitive and non-cognitive skills among youth of physical education. The physical activity was tested positive and significant in relationship with sports and cognitive skills. This study thus confirmed the significant connection between physical activity and sports in-between cognitive and non-cognitive skills.
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Corresponding Author	Mehwish Manzoor: <a href="mailto:mehwishmanzoor233@yahoo.com">mehwishmanzoor233@yahoo.com</a>
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## INTRODUCTION

The physical activity is complex and complicated aspects toward the healthy lives from different perspectives. This is not really complete without reality of physical wellness and fitness, physical education, cognition and sports (Doherty & Miravalles, 2019). The physical activity is censorious and crucial part of our academic establishment and organization and a way to create a powerful connection between physical activity, sports and enhancing students for many attainment and performances in the classrooms (Ahamed, Reed, Naylor, Ambrose & McKay, 2007; Donnelly & Lambourne, 2011). The physical activity for better cognitive and non-cognitive and awareness skill and knowledge among the students. The students become cognitively and nonspiritually and wordly enough strength to coomunicate with all activities related to excitement and excitation

of life and chances of availability (Erickson, Hillman & Kramer, 2015). In this connection, sports shows the culture of art and intellectual aspects of a country, state and most essential a specific part. It also represents sound health of students who live actively when involved in the sports activities (Vučić & Kirin, 2020). Sports keep students healthy, well, fit, and free from any disease and illness, which make the students alert for all kinds of work and task involving academic or non-academic, mental and physical including physical learning and knowledge establishment of students.

The physical activity create students mentally and physically strengthen with the resolution and persistence to deal simple to complex phase. The students look more intelligent and adorable by having a fit and fine healthy lifestyle (Donnelly, Hillman, Castelli, Etnier & Lee, 2016). physical education and learning makes avenues of data collected biased on mental and physical research and skills and capabilities (Åvitsland & Leibinger, 2020). Physical education is nearly connected with establishing and making it for better cognitive and non-cognitive research and knowledge and capabilities among youth (Resaland, Aadland, Aadland & Skrede, 2016). Thus, the physical curriculum and sports, both are the most important and vital factors to make someone strengthen and encourage in terms of cognitive and non-cognitive ways (Donnelly & Lambourne, 2011). The existing trend of schools toward reducing time allocated for the physical activity, prioritizing instead focus on academic subjects that feature in standardized tests, exacerbates sedentarism in schoolchildren (Vučić & Kirin, 2020). Thus, the physical activity and sports enhance academic outcomes of their all performance among students which can also extend and increase the opportunity of employment in related job market (Åvitsland & Leibinger, 2020). This study is an effort to examine the existing realities to contribute the knowledge database about the physical education.

### **Problem Statement**

Role of physical activity and sports that are elements of physical education and their relationships are not yet tested with cognitive and non-cognitive skills in educational sphere of northern Punjab. Therefore, there is acute need to carry-out pragmatic research on the theme of sports education and its relationship with cognitive and non-cognitive skills. This is general problem which needs to be addressed immediately. The relevant literature can be contributed to enhance the boundary of knowledge into the existing literature for the assistance of future researchers. There is limited research embarked on theme of physical education and its relationship with cognitive and non-cognitive skills across the board (Dacica, 2012). Since, the college education of northern Punjab is not yet taken under consideration for carrying-out research practically on the theme of physical education and its impact on cognitive and non-cognitive skills among the youth. Therefore, this study identified the vivid gap which needs to be bridged based on data collection and drawing conclusion. Researcher identified specific and most appropriate gap which should be bridged by setting aim of study and later objectives of the study. New knowledge can be created to address the current issue of research context based on objectives. The research study focus on physical activity positive effect on post-compulsory education instigation. In this connection, substantial part of this effect was mediated through the academic achievement (Andersen, Starkop & Sessa, 2017).

### **Objective of Study**

1. The study was based on the single aim that was further broken down into two objectives aimed to examine impact of physical activity in development of cognitive and non-cognitive skills.

2. To examine the impact of physical activity in development of cognitive and non-cognitive skills.
3. To analysis relationship between the physical activity and the cognitive and non-cognitive students.

### **LITERATURE REVIEW**

The existing literature on nature of physical education provides a basis for future studies. This study relies on previously published literature and online resources to test hypotheses and reveal relationships between physical education and cognitive and non-cognitive skills. Since physical education covers both aspects such as; physical activity and sports. Both are discussed in detail separately. Physical activity is presented as any motion the needs body movements and involved all body regions energetic and capabale according to utilization (Donnelly & Lambourne, 2011). Students are survive and persist physically fit and healthy with physical activity. There are many categories of advantages such as; students exists and survive away from all types and orders of disease and illness, energy increases and they can be capable to fix in of physical assignment whether institutive or non-institutive. Students look intellectual and intelligent with the physical performance. According to vucic and kirin (2020), mind and body corporate in specific sequence even endoskeleton and exoskeleton work particularly and help the body to support in manifolds. The students participate and involved in unpaid armateur activities on the requirement of the family and friends anytime having been physically fit, workable as well as energetics (Mandolesi, Polverino, Montuori, Foti & Ferraioli, 2018). In this connection, the concerned students display the evidence of the self confidence and strengthen everytime and make the attractive inspiration for others by representing and elaborating practical work related to and also involved to physical behaviors.

Without any irregularity practice of physical performance create the students strengthen in the determination path making as-well. The physical activities has various benefits for all ages of the students. All organs that remains inside the body remain healthy and work in special order and terms with physical activity (Mitchell, Gottfried, Stocking, Walker & Fedeli, 2019). Physical activity prevents the disease to move further and even excreted them with the proper punctual practice. The students enjoy life by practicing the all physical exercising circulum activities. The physical activity is the main and the most important subject for the physical and health teachers and students. According to white (2018), the physical performances and skills includes walking, running, physical wellness, healthy lifestyle, exercise, sports and many other projects, tasks and missions that need to improve the physical health and well being of students. Since, the physical performances is suggested by many health practictioners for all ages of people whether young, adult, or old. The physical activity consumes health disadvantages and puts positive effect on the health of students. Han (2018), physical education and seeking encircles and encloses physical activity and sports both have positive effects over the cognitive and non-cognitive research and knowledge of students. The students can do what they have a overall point of view on description and narration of being fit and fine and active with energetic workable wellness due to physical health.

The physical activities has positive effects on institutive education and skills during classrooms. Body exists and survives flexible and makes students capable to do any type of work and task that related to or concerns to physical manners. Physical activities is an important and essential element of anyone s health and wellness (Mandolesi, Polverino, Montuori, Foti & Ferraioli, 2018).

Students seek a lot by having been sound outsided bodily. Sports involved all aspects of games and activities such as; cricket, football, hockey, volleyball, running, badminton, etc. There is a fight and struggle between two or many in any of the sports (Andersen, Starkopf, Sessa, Nielsen Bøggild & Pedersen, 2017). Sports extends all cognitive and non-cognitive skill and knowledge. Perceptive capability involved creating determination of resolution and selection to win battles. However, the non-perceptive practice needs physical motion and activeness (Vučić & Bilić-Kirin, 2020). The decisions without physical movements and mutual action do not outcome in winning. Both corporate similarly equally in many sports. The students determine the entire perceptive and non-perceptive capabilities on the phase of sports (Nemec, Adamčák & Marko, 2022). In this connection, it is the most vital, essential and detrmining facet of anyone life. The students also play one or more sports activities according to their attentiveness and attention and physical wellness.

According to Turner and Figuerora (2019), every sport needs variety of diverse types of physical motion and wellness. Some needs more movements and resilience and flexibility and others need not more motion and flexibility. Sports is a program which is learned and skilled according to research throughout the academic career. Schools and colleges choose and select sports mentor and educator who are primarily dutifill for practicing the students according to the area of areas of attention and curiosity in the specific sport (Vučić & Kirin, 2020). The students enjoy life by practicing the all physical exercising ciriculum activities. Physical activity is the main and the most important subject for physical and health teachers and students. They also connect students in many sports and give them the task and work to do to play a vital role at many specific events (Nemec, Adamčák & Marko, 2022). In this connection, the sports increases and extends mental strength and physical wellness both are most important for physical appearance and skill and knowledge of students. Students learn to involve in sports and also do competitions with other teams, starting at school level, then they participate at colleges and universities to show them at the provincial or country level and final category of reidentification to take part in sports at the national level to fight with other nations and represent the country. In this connection, the sports itself makes recognition of players. Today's students will be tomorrow the players at the country level.

### **Hypothesis of Study**

H<sub>0</sub>: There no significant impact of physical activity in development of cognitive and non-cognitive skills of physical education students.

H<sub>0</sub>: There is no significant relationship between impact of physical activity in the development of cognitive and non-cognitive skills.

### **RESEARCH METHODOLOGY**

In the existing research study, the researcher used quantitative method which aimed to eximine the impact of physical activity in the development of the cognitive and non-cognitive skills of the physical education students, in the present study, the researcher used the method of case study. It refer to the appropriate design in which the researcher desire to get contextual, conclusion and in-depth information and knowledge about any research project it may allow the research to explore the basic feature, implication and meaning of the case. It is the concepts of researcher about the knowledge that what is the real concept of knowledge? And how it could be gathered and documented? And how it could be communicated? It is the beliefs of Positivism indicates that what knowledge can be verifiable objectively. The observational symbols also be helpful in

to recode and communicate knowledge like word and concepts. According to these beliefs about research philosophy, the researcher has used the scientific methodology based on the surveys of literature.

Population maybe defined as, those objects, things and individuals having same characteristics. All male and female physical education students at northern Panjab were the population of the current study. The researcher used stratified sampling technique for the current study. The researcher further adopted Godden (2004). There were 210 male participants as well as 210 non-participant and similarly 290, 290 female participant and non-participant. Data was collected from degree college northern Panjab through random sampling technique. Questionnaire was the simple way and method for the data collection Figuerora (2019). In the present study the researcher used self administered com cloded ended questionnior for data collection, validity and reliability was done accordingly. The collected data was then put into SPSS to tabulate and arrange data, that aim to get desire result. Description research approach was used to get desire result.

**DATA ANALYSIS**

The results obtained through statistical procedures in order to chase the hypotheses and find the desired outcomes have been presented in this section. In this connection, values of Cronbach alpha for the reliability of questionnaire are falling in good category, obtained through SPSS, it indicates that the questionnaire was authentic for this research and variables having the internal consistencies.

**Table 1**  
*T-independent Test*

Equal variances assumed	F	Sig	t	df	Sig (2-tailed)
	6.258	.013	10.089	998	.000
Equal variances not assumed			10.089	989.750	.000

From table number 1.1 it is evident that t value is .518, which is not significant it 0.01 level with df equal 28. It reflects that means course of anxiety of male and female students did not differ significantly. In this context the Null hypothesis “there no significant impact Of physical activity in the development of cognitive and non-cognitive skills of physical education students “is not rejected.

**Table 2**  
*T-independent Test*

	Levene’s Test for Equality of Variance					T-test EM		95% CID	
	F	SIG	t	DF	SIG	MD	SD D	Lower	Upper
EV- Assumed	6.258	.013	10.089	998	.000	6.4926	.64352	5.22979	7.755
EV- Not Assumed			10.089	989.750	.000	6.4926	.64352	5.22978	7.755

It is evident that the t value is 10.089, which is not significant it 0.05 level with df equal 989.750. It reflects that means scores of participants and non-participants differ significantly. In this context the Null hypothesis “there is no significant relation between Impact Of physical activity in the development of cognitive and non-cognitive skills of the physical education students. “Is rejected.

**Table 3**  
*Unavailability of Sports Facilities Has Negative Impact on Academic Achievement*

Option	Male				Female			
	Cognitive		Non-cognitive		Cognitive		Non-cognitive	
	FRQ	%	FRQ	%	FRQ	%	FRQ	%
Strongly Disagree	83	39.523	77	36.666	147	50.689	86	29.655
Disagree	66	31.428	13	6.190	45	15.571	58	20.0
Neutral	22	10.476	30	14.285	30	10.344	65	22.413
Agree	19	9.047	64	30.476	21	7.241	34	11.724
Strongly agree	20	9.523	36	17.142	47	16.206	47	16.206
Total	210	100.0	210	100.0	290	100.0	290	100.0

The frequency and persantage that non-participant male against the statement shows the most of respondents strongly disagree with this statement. And shows that participant female against the statement shows the most of the respondents strongly disagree with this statement in this research.

**Table 4**  
*Sports Activities Has Negative Impact on Student Academic Achievements*

Option	Male				Female			
	Cognitive		Non-cognitive		Cognitive		Non-cognitive	
	FRQ	%	FRQ	%	FRQ	%	FRQ	%
Strongly Disagree	96	45.714	66	31.428	185	63.793	82	28.275
Disagree	61	29.047	50	23.809	53	18.275	85	29.310
Neutral	27	12.857	27	12.857	20	6.896	44	15.172
Agree	15	7.142	34	16.190	10	3.448	51	17.586
Strongly agree	11	5.238	33	15.714	22	7.586	28	9.655
Total	210	100.0	210	100.0	290	100.0	290	100.0

Frequency and persantage shows that the respondents participant male against the statement shows the most of the respondents strongly disagree with this statement and thus shows that the participant female against the statement shows most of respondents strongly disagree with this statement.

**Table 5**  
*Participation in Sports Activities Leads Towards Good Academic Progress*

Option	Male				Female			
	Cognitive		Non-cognitive		cognitive		Non-cognitive	
	FRQ	%	FRQ	%	FRQ	%	FRQ	%
Strongly Disagree	17	8.095	52	24.761	19	6.551	54	18.620
Disagree	13	6.190	30	14.258	23	7.931	52	17.931
Neutral	33	15.174	68	32.380	30	10.344	80	27.586
Agree	59	28.095	29	13.809	74	25.517	62	21.379
Strongly agree	88	41.904	31	14.761	144	49.655	42	14.482
Total	210	100.0	210	100.0	290	100.0	290	100.0

Frequency and persantage shows that participant male against the statement shows the majority of the respondents strongly agree with this statement and shows that participant female against the statement shows the mostly of the respondents strongly agree with this statement as per the results.

**Table 6**  
*Sports Activities Are Helpful in The Achievement of Useful Purpose Academic*

Option	Male				Female			
	Cognitive		Non-cognitive		cognitive		Non-cognitive	
	FRQ	%	FRQ	%	FRQ	%	FRQ	%
Strongly Disagree	9	4.285	54	25.714	2	0.689	56	19.310
Disagree	12	5.714	48	22.857	10	3.448	44	15.172
Neutral	34	16.190	42	20.0	35	12.068	55	18.965
Agree	86	40.952	30	14.285	128	44.137	59	20.344
Strongly agree	70	33.333	36	17.142	115	39.655	76	26.206
Total	210	100.0	210	100.0	290	100.0	290	100.0

Frequency and persantage Shows that non-participant male against the statement shows the majority of the respondents agree with this statement and shows that participant female against the statement shows the majority of the respondents agree with this statement as per the desired outcomes.

**Table 7**  
*Sports Enhances the Natural Qualities in Students of Respondents*

Option	Male				Female			
	Cognitive		Non-cognitive		cognitive		Non-cognitive	
	FRQ	%	FRQ	%	FRQ	%	FRQ	%
Strongly Disagree	20	9.523	69	32.857	16	5.517	45	15.517
Disagree	11	5.238	40	19.047	12	4.137	52	17.931
Neutral	20	9.523	36	17.142	28	9.655	58	20.0
Agree	45	21.428	36	17.142	58	20.0	59	20.344
Strongly agree	114	54.285	29	13.809	176	60.689	76	26.206
Total	210	100.0	210	100.0	290	100.0	290	100.0

Against the statement of the questionnior described that participant male against the statement shows the mostly of the respondents strongly agree with this statement. Shows that participant female against the statement shows the majority of the respondents strongly agree with this statement.

**Table 8**  
*Sports Give the Sense to Academic Achievement Goals in A Student of Respondents*

Option	Male				Female			
	Cognitive		Non-cognitive		cognitive		Non-cognitive	
	FRQ	%	FRQ	%	FRQ	%	FRQ	%
Strongly Disagree	14	6.666	61	29.047	9	3.103	46	15.862
Disagree	12	5.714	52	24.761	15	5.172	52	17.931
Neutral	44	20.952	36	17.142	25	8.620	61	21.034

Agree	78	37.142	32	15.238	128	44.137	62	21.379
Strongly agree	62	29.523	31	14.761	113	38.965	69	23.793
Total	210	100.0	210	100.0	290	100.0	290	100.0

Frequency and persantage that non-participant male against the statement shows the mostly of the respondents strongly agree with this statement and shows that participant female against the statement shows the mostlyof the respondents strongly agree with this statement as per desired results.

**Table 9**  
*Sports Produce Determination Towards Academic Achievement of Respondents*

Option	Male				Female			
	Cognitive		Non-cognitive		cognitive		Non-cognitive	
	FRQ	%	FRQ	%	FRQ	%	FRQ	%
Strongly Disagree	14	6.666	31	14.761	7	2.413	62	21.379
Disagree	9	4.285	35	16.666	11	3.793	51	17.586
Neutral	30	14.285	36	17.142	28	9.655	46	15.862
Agree	71	33.809	75	35.714	107	36.896	73	25.172
Strongly agree	86	40.952	33	15.714	137	47.241	58	20.0
Total	210	100.0	210	100.0	290	100.0	290	100.0

Frequency and persantage hows that participant male against the statement shows the mostly of the respondents strongly disagree with this statement and shows that participant female against the statement shows the mostly of the respondents strongly disagree with this statement as per results.

**Testing of Hypothesis**

HO: There no significant impact of physical activity in development of cognitive and non--cognitive skills of physical education students.

HO: There is no significant relation between impact of physical activity in development of cognitive and non-cognitive skills of physical education students.

**Table 10**  
*Model Fitting Information*

Model	Model Fitting Criteria			Likelihood Ratio Tests		
	AIC	BIC	2 L-Likelihood	Chi-Square	Df	Sig
Intercept Only	2250.586	2270.217	2242.586			
Final	385.122	444.015	361.122	1881.463	8	.000

In this research study, The model fitness was evaluated using the chi-sqaure statistic. The chi-sqaure value was 1881.463 and the P-value was less than 0.05. This proves that there is the significant relationship between the sport and academic achievement in the final model of the stusy.

**Goodness of Fit and Pseudo R-Square of Model**



**Table 11**  
*Goodness of Fit*

	Goodness-of-Fit			Pseudo R-Square	
	Chi-Square	Df	Sig	Cox and Snell	.848
Pearson	147.375	736	.0975	Nagelkerke	.900
Deviance	166.210	736	1.000	McFadden	.659

The person (147.375) and deviance (166.210) statistics test prove that the model is fit. Since, test are not statistically significant, that is P-value is greater than 0.05. Pseudo R-Square measures are Cox and Snell (0.848), Nagelkerkes (0.900) and MCF adden (0.59). The model accounts for 3.9% to 14.6% of the variance and represents relatively decent –sized effects from results.

## DISCUSSION

The existing research study was focus on impact of physical activity in development of cognitive and non-cognitive skills of physical education student. Researcher found that Physical activity has significant impact on cognitive and non-cognitive skills. In these regard, [Walker and Fedeli, \(2019\)](#), stated that physical education sports are represents the component of general education which arranges the rules, and forms of group and development for the and mental potential of the individual, in order to increase quality of life. The research study focus on impact of physical activity in the development of cognitive and non-cognitive skills of physical education students. The previous findings of Pakistan with respect to the said variables and compared these findings to the result. Basically concluded on the basis of the results of the study that the physical activity has positive effect on cognitive skills. It was indicated by findings of the past existing research study regarding the predictor, mediating variable social support and criterion physical activity and sports. In this connection, the previous literature identified the variety of findings of the the impact of physical activity in the development of cognitive and non-cognitive skills of the physical education students. Inline and link, some other studies found that the said sports variable plays the physical activity role between cognitive skills and non-cognitive skills in similar or different contexts.

In the existing research study, the researcher used quantitative method which aimed to eximine the impact of physical activity in development of cognitive and non-cognitive skills of physical education students.” in the present study. In the current study the researcher found that, there is a positive & strong relation between physical activity and cognitive skills. Similarly [Demirtas et al. \(2015\)](#) found that physical activity involved all aspects of the games and activities such as; cricket, football, hockey, volleyball, running, badminton, etc. There is fight and struggle between two or many in any of sports. Sports extends all cognitive and non-cognitive skill and knowledge. Perceptive capability involved creating determination of resolution and selection to win battles. However, the non-perceptive practice needs physical motion and activeness. Decisions without the physical movements and mutual action do not outcome in winning. Both corporate similarly equally in many sports. The students determine the perceptive and non-percepptive capabilities on phase of sports. Thus, the students involvement in physical activities is critical in maintaining the students health and academic outcomes in different situations and contexts. Thus, it is the most vital and essential facet of anyone s life. The students also play one or more sports according to their attentiveness and attention as well as physical wellness ([Andersen, Starkopf & Sessa, 2017](#)).

## CONCLUSION

The result of the present study indicates that physical activity has significant impact on cognitive skill of the physical education students, as it was indicated that the statistical value became low while connection between physical activity and cognitive skills performance remains significant after adopting the social support as the physical activity (96). Thus, reliable with the past study, the result of the current study authenticate that the physical movement, which plays impact of physical activity in the development of cognitive and non-cognitive skills of physical education students. It is evident that t value is 10.089, which is not significant, it 0.05 levels with df equal 989.750. It reflects that means scores of participants and non-participants differ significantly. Basically, physical Activity involving physical health and skills in which an individual or team competes against another or others. In this connection, they have concluded on the basis of the results of the study that the physical activity has a positive effect on cognitive skills. In this linking, human activity capable of achieving result requiring physical application and/or physical skill, which, by its nature and organization, is competitive and is generally accepted as being a sport.

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