

An analytical study of hand grip strength between government and private physical education teachers of Jammu

Deepika Gupta

Department of Physical Education, Guru Nanak Dev University, Amritsar, Punjab, India

DOI: <https://doi.org/10.66856/ijyppe.2024.9.4.11060>

Abstract

The aim of this study was to find out the difference in left-hand grip strength and right-hand grip strength between government and private male physical education teachers of Jammu. Fifty male physical education teachers (25 government + 25 non-government) were selected from Jammu for this study. The age of the subjects was ranged between 30 to 40 years. Selected variables: left-hand grip strength and right-hand grip strength was measured by using hand grip dynamometer. Descriptive statistics and independent t-test was employed by 'SPSS Version-23'. The results showed that there was an insignificant difference in left-hand grip strength and right-hand grip strength between government and private physical education teachers of Jammu.

Keywords: Fitness, hand grip strength, dynamometer

Introduction

Physical fitness has always been a very important aspect of human life. One of the key goals of physical education is the promotion of health and wellness through exercise, recreation activity, games and sports. A large number of individuals from childhood to old age are now carrying out daily physical exercise to improve health and physical well-being. Physical fitness is an important component of an individual's natural growth and development to lead a healthy lifestyle. A serious threat to an individual's wellbeing is physical inactivity and unconstructive lifestyle behaviors. Scientific evidence has been generated to demonstrate that people's general health and physical performance abilities rely primarily on their level of physical fitness. (Edwin A, 1964) ^[4]

Health-related fitness is described as the ability to carry out strenuous activity without getting tired, demonstrating characteristics that limit the risk of developing diseases and disorders that affect the functional capacity of an individual. Muscular strength, muscular endurance, flexibility, cardio-respiratory endurance and body composition are recognized as components of health-related physical activity. However, the level of development of each activity varies with the form of physical activity. (Siedentop, 1994) ^[9]

Health-related fitness relates to the ability to perform activities of daily living without undue fatigue and is conducive to a low risk of premature hypokinetic diseases. Components of health-related fitness are classified into cardiorespiratory endurance, muscular strength, muscular endurance, flexibility, and body composition. (Werner & Sharon, 2013)

Maximal contraction power of the muscles is known as muscular strength. The muscular strength is usually measured with respect to individual group of muscles acting together. Muscular strength is tested with the help of dynamometers which measure the amount of force exerted in a single effort by a particular group of muscles.

Aim of Study

The aim of the present study was to find out the difference in left-hand grip strength and right-hand grip strength between government and private physical education teachers of Jammu.

Material and Methods

Total fifty male physical education teachers (25 government + 25 private) were selected as subjects from Jammu for this study. The age of subjects was ranged between 30-40 years. Selected variable left-hand grip strength and right-hand grip strength was measured using hand grip dynamometer. Hand grip dynamometer is considered a valid and reliable instrument for measuring the grip strength of hands (Satish Kumar Anumala, 2014).

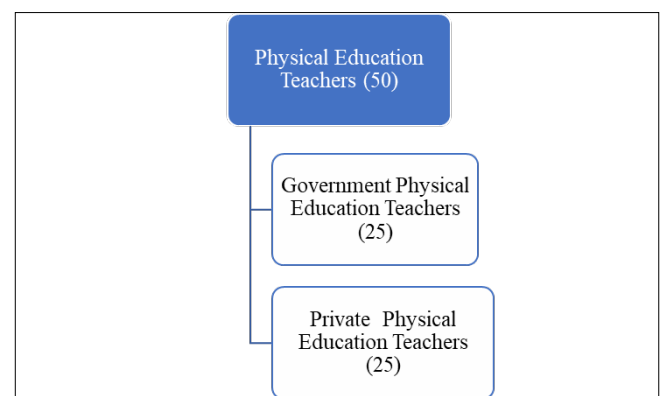


Fig 1: Description of Sampling Plan

Procedure

Before the data collection, consent was taken from the subjects and purpose of the study was explained. Demonstration of the testing protocol was given to the subjects by the researcher. Three trials were given and highest reading was taken as score. After every effort, one-

minute break was given to the subject. Measurement was taken in nearest to 0.1 Kg/ lbs. (Kansal, 2012)^[7]

Statistical Technique

Descriptive statistics i.e., mean and standard deviation were calculated. As per objective of the study, ‘t-test’ was applied to find out the difference between various groups. All tests were employed with the help of SPSS-software version 23. Level of significance was set at 0.05.

Results

Table 1: Descriptive statistics and t-value for left-hand grip strength variable

Group Name	Mean	SD	t-value	Sig.
Government Physical Education Teachers	35.45	4.33	-1.26	0.23
Private Physical Education Teachers	36.07	3.55		

SD = Standard Deviation *Indicate significant at 0.05 level

Table-1 shows that values of mean and standard deviation for left-hand grip strength variable for government and private physical education teachers’ group are 35.45 ± 4.33 and 36.07 ± 3.55 respectively. It also shows that p-value ($p = 0.23$) is more than 0.05 which means that there exists an insignificant difference between government and private physical education teachers in case of left-hand grip strength variable.

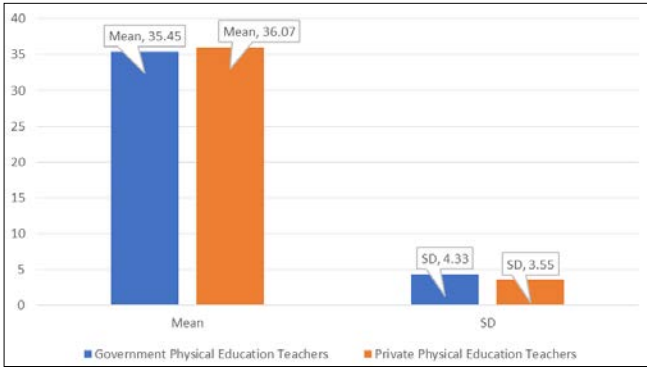


Fig 2: Graphical representation of descriptive statistics for left-hand grip strength variable

Table 2: Descriptive statistics and t-value for right-hand grip strength variable

Group Name	Mean	SD	t-value	Sig.
Government Physical Education Teachers	38.98	4.50	-.327	.744
Private Physical Education Teachers	39.33	6.07		

SD = Standard Deviation

Table-2 shows that values of mean and standard deviation for right-hand grip strength variable for government physical education teachers’ group and private physical education teachers’ group are 38.98 ± 4.50 and 39.33 ± 6.07 respectively. It also shows that p-value ($p = .74$) is more than 0.05 which means that there exists an insignificant difference between government physical education and non-government physical education teachers in case of right-hand grip strength variable.

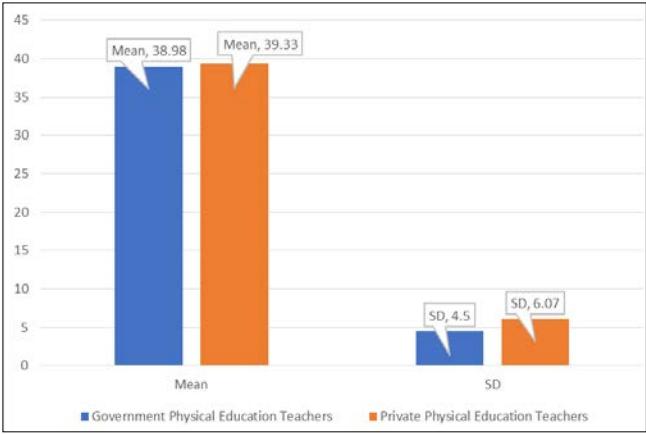


Fig 3: Graphical representation of descriptive statistics for right-hand grip strength variable

Discussion

The aim of the present study was to find out the difference in left-hand grip and right-hand grip strength between government physical education and private physical education teachers of Jammu.

The results of the study showed that there was an insignificant difference between government and private physical education teachers in case of left-hand grip strength and right-hand grip strength variables. Grip-strength is an important factor in terms of fitness for physical education teacher because he has to teach various kinds of physical activities: with and without apparatus. In case of teaching activities with apparatus, grip strength plays a major role, For example; Parallel bars and Roman rings events in gymnastic, Pole vault in athletics etc. Physical education teachers of both sectors: Government and Private teach practical activities in sports playgrounds so it might be the reason that this study did not find any statistically significant difference in left-hand grip strength variable and right-hand grip strength variable between government and private teachers of Physical education. The result of this finding is supported by the study conducted by Chaphekar *et al.* (2021)^[3]. Conducted a study to compare hand grip strength in different wrist positions in right and left-handed tennis players. For this study hand grip strength of 40 tennis players (20 right and 20 left handed) was measured with Jamarhandheld dynamometer in different wrist positions. Age, height and weight were also measured for this study. The results of the study showed that there was no significant difference in hand grip strength in different wrist positions between right and left-handed tennis players.

Conclusion

The present study concluded that male government and private physical education teachers of Jammu do not differ in left- and right-hand grip strength variables.

References

1. All about Adult BMI. Centers for Disease Control and Prevention. https://www.cdc.gov/healthyweight/assessing/bmi/adult_bmi/index.html, 2022.
2. Bhandari P. Descriptive Statistics | Definitions, Types, Examples. Scribbr. Retrieved May 18, 2024, from <https://www.scribbr.com/statistics/descriptive-statistics/>, 2023.

3. Chaphekar A, Somarajan S, Patel B, Patel V, Bhalara M, Maisuriya D, et al. Comparison of hand grip strength in different wrist positions in right- and left-handed tennis players. *International Journal of Science and Research*, 2021;10(1):SR201222120203. <https://doi.org/10.21275/SR201222120203>
4. Fleishman EA. *The structure and measurement of physical fitness*. Englewood Cliffs, New Jersey: Prentice Hall., 1964.
5. Getchell B. *Physical Fitness A way of Life*. New York: John Wiley and sons incorporated., 1965.
6. IBM Corp. *IBM SPSS Statistics for Windows (Version 27.0) [Computer software]*. IBM Corp., 2023.
7. Kansal DK. *Test Measurement and Evalutaion*. New Delhi : SSS Publication, 2012.
8. Kim TK. T test as a parametric statistic. *Korean Journal of Anesthesiology*, 2015;68(6):540. <https://doi.org/10.4097/kjae.2015.68.6.540>.
9. Siedentop D. *Introduction to Physical Education, Fitness and Sport*. California: Mayfield publishing company., 1994.
10. Baumgartner TA, Jackson AS. *Measurement for Evaluation in Physical Education and Exercise Science (3rd Ed; Dubuque, Iowa: Wm. C. Brown Publishers)*, 1987, 11.
11. Hoeger WWK, Hoeger SA. *Lifetime Physical Fitness & Wellness: A Personalized Program*, Twelfth Edition, Wadsworth, Cengage Learning, USA., 2013.