RESEARCH ARTICLE

A study on class & sex on exercise prescription of HRPFKT in high school and higher secondary school students in kerala, India.

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Abstract

This study investigated the dimension Exercise Prescription of the Health-related physical fitness knowledge among high school and higher secondary school students in Kerala. The sample comprised of 2545 boys and 2565 girls following different syllabus in the state of Kerala. In the dimension Exercise prescription, out of the six questions, 52.6% questions were answered correctly by the students, this does shows that it the students does have only superficial knowledge in Health Related Physical Fitness. The curricular inclusion of the dimensions selected will definitely help students to acquire sufficient knowledge on Health Related Physical Fitness. The level of significance was set at 0.05 level.

Introduction:-

The cognitive knowledge on physical fitness and the attitude towards physical activity do have a direct link. Merkle (1993) conducted a study on student knowledge of health and fitness concepts and its relation to locus of control. An analysis of health awareness among students indicates that, students who were educated especially in health and related affairs obtained high scores in their personal physical fitness.

The investigator developed the Health-related physical fitness knowledge Test (HRPFKT) to provide a standardized physical fitness knowledge test which is appropriate for use on high school and higher secondary school students of Kerala. This test assess cognitive knowledge on seven different areas of Health-related physical fitness namely Concept of Fitness, Scientific Principles of Exercise, Components of Physical Fitness, Effect of Exercise on Chronic Disease Risk Factors, Exercise Prescription and Other Factors

The present study aims to assess the high school and higher secondary school student's knowledge on one of the selected dimension HRPFKT i.e. "Exercise Prescription".

Methods and materials:-

The knowledge of the students on the dimension "Exercise Prescription" of Health-related physical fitness knowledge Test (HRPFKT) have six items from different areas and they are Frequency, Intensity, duration, Mode, self-Evaluation, and Adherence to Exercise. The of questions in the dimension "Exercise Precription " in HRPFKT is 12%. The subjects were 5110 students (2545 boys and 2565 girls) studying in high school and higher secondary schools of Kerala with age between 13 to 19 years and were from the rural and urban areas and that to from different syllabus followed by the students namely State Board, C.B.S.E. and I.C.S.E. Besides, the data collected from 5110 students do represent proportionately the various districts of Kerala state.

-Analysis and discussion:-

The ANOVA Table shown below is related to the dimension Exercise Prescription of Health Related Physical Fitness Knowledge Test among different classes shows significant differences as the F ratio's obtained for the dimension namely Exercise prescription were 18.255 at 0.05 level of confidence as the tabulated $F_{(4, 5100)}$ required to be significant was only 2.37. Significant findings which need specific mentioning related to table 1 is that the F ratio's obtained for above dimension of Health Related Physical Fitness Knowledge Test were found to be significant at 0.01 level. The above dimension Exercise Prescription shown as the F ratio's and p value obtained were (F=18.255, p=. 000).

Table -1:-Analysis of variance done on the dimension exercise precription of health related physical fitness knowledge test among different classes

Dependent Variable		Sum of Squares	df	Mean Square	F	Sig.
Exercise Prescription	Class	132.094	4	33.023	18.255*	0.000
	Error	9225.863	5100	1.809		

Note: The F tests the effect of class. This test is based on the linearly independent pairwise comparisons among the estimated marginal means.

\#   CDRF = Chronic Disease Risk Factors

*   Significant at .05 level $F_{(4, 5100)}$ = 2.37..

Subsequently, Least Significant Difference (LSD) post hoc test were administered for pair wise comparisons between the different classes and are presented for dependent variable Exercise prescription, in the table 2 respectively.

Table 2:- Post hoc analysis done on exercise prescription among different classes

(I) Class	(J) Class	Mean	Mean Difference between I&J	Std. Error	Sig.(a)
8.00 M=3.092	9.00	3.160	0.068	0.060	0.257
	10.00	2.940	0.152*	0.060	0.011
	11.00	3.434	0.342*	0.059	0.000 p< 0.001
	12.00	3.144	0.051	0.060	0.389
9.00 M=3.160	10.00	2.940	0.219*	0.060	0.000 p< 0.001
	11.00	3.434	0.274*	0.059	0.000 p< 0.001
	12.00	3.144	0.016	0.060	0.788
10.00 M=2.940	11.00	3.434	0.494*	0.059	0.000 p< 0.001
	12.00	3.144	0.203*	0.060	0.001
11.00 M=3.434	12.00	3.144	0.290*	0.059	0.000 p< 0.001

Note: Based on estimated marginal means

*   Significant at 0.05 level.

[a]   Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

The Table 2 on the dependent variable Exercise prescription do indicates significant mean differences between classes namely between class eight and ten (MD=0.152 & p=0.011), class eight and eleven (MD=0.342 & p=0.059), class nine and ten (MD=0.219 & p=0.000), class nine and eleven (MD = 0.274 & p= 0.000) between ten and class eleven (MD=0.494 & p=0.000) ten and twelve (MD = 0.203 & p= 0.001) and between class eleven and class twelve (MD = 0.290 & p= 0.000), as the p value in all the above cases were much less than 0.05, the level of significance set for this study. On the other hand, no significant differences were found, between classes eight and class nine (MD = 0.068, p = 0.257) and between class eight and class twelve (MD = 0.051, p = 0.389) as the p value obtained for the six comparisons were much more than 0.05, the level of significance, set for this study.

The graphical representation of mean scores on the dimension Exercise Prescription of different classes is presented in Figure 1
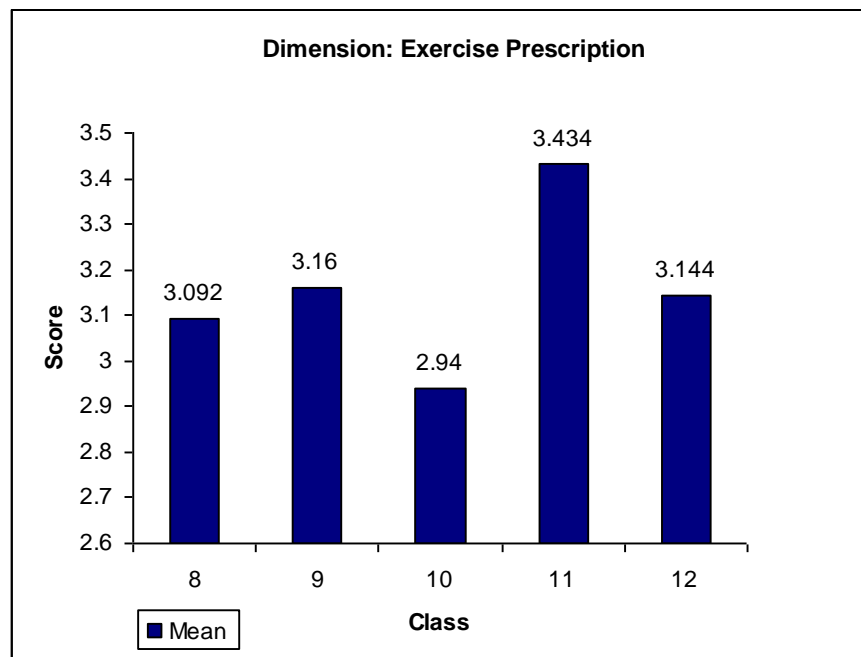
Figure 4.5:- Mean scores on the dimension Exercise prescription of different classes.

Table- 3:- multivariate analysis (manova) done on different dimensions of health related physical fitness knowledge test results across gender

	Value	F	Hypothesis df	Error df	Sig.
Pillai's trace	0.009	7.911(a)	6.000	5095.000	0.000 p<.001
Wilks' lambda	0.991	7.911(a)*	6.000	5095.000	0.000 p<.001
Hotelling's trace	0.009	7.911(a)	6.000	5095.000	0.000 p<.001
Roy's largest root	0.009	7.911(a)	6.000	5095.000	0.000 p<.001

Note: Each F tests the multivariate effect of gender. These tests are based on the linearly independent pairwise
          comparisons among the estimated marginal means.
[a]   The statistic is an upper bound on F that yields a lower bound on the significance level.
*   Wilk's lambda and the difference is highly significant

The multivariate test (MANOVA) done on the dependent variables across gender is presented in Table 3, which reveals an overall significant difference between gender i.e., between girls and boys on the dependent variables (F = 7.911) at p = .000 (p<.001). Besides, a univariate F ratio was done to identify the significant mean difference on independent variable Exercise prescription and between the gender and are presented in Table 4.

Table 4:- Analysis Of Variance Done On Different Dimensions Of Health Related Physical Fitness Knowledge Test Across Gender

Dependent Variable		Sum of Squares	df	Mean Square	F	Sig.
Exercise prescription	Gender	.005	1	.005	.003	.956
	Error	9225.863	5100	1.809		

Note: The F tests the effect of Gender. This test is based on the linearly independent pairwise comparisons among
          the estimated marginal means.
[#]   CDRF = Chronic Disease Risk Factors
*   Significant at .05 level $F_{(4, 5100)} = 2.37$

The results of ANOVA shows no significant differences were found between boys and girls on dimension Exercise Prescription.

Conclusion:-

In the dimension Exercise prescription, there were six questions and 52.6% questions were answered correctly by the students. It does showed that students only have superficial knowledge in Health Related Physical Fitness. At the outset, curricular inclusion of the dimensions selected will definitely help students to acquire sufficient knowledge in Health Related Physical Fitness.Overall significant differences were found between the classes in Health Related Physical Fitness Knowledge. Students in 11th class and higher tend to have more experientially related information (e.g., the best exercise to improve cardiovascular fitness or identification of anaerobic activities).Class 11 and 12 students have more deeper knowledge when compared to the lower classes on fitness knowledge. In the dimension Exercise prescription, there were six questions and 52.6% questions were answered correctly by the students. A test of Health Related Physical Fitness Knowledge is a necessary component and important factor of Physical Education because the knowledge of physical fitness and personal exercise behaviour are related.

Reference:-

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