

Comparison of physical self-concept among physical education, management and engineering students

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Received : 02.07.2012; Revised : 22.08.2012; Accepted : 25.08.2012

■ ABSTRACT

The study was designed to investigate differences of physical self-conception among physical education, engineering and management students. Physical self-description questionnaire (PSDQ, Marsh *et al.*, 1994) was administrated among 53 students studying in different colleges. The Physical Self-Description Questionnaire (PSDQ) is a multidimensional, physical self-concept instrument designed to measure 11 scales: Strength (ST), Body Fat (BF), Activity (AC), Endurance/Fitness (EN), Sports Competence (SP), Coordination (CO), Health (HE), Appearance (AP), Flexibility (FL), Global Physical Self-concept (GP), and Global Esteem (GE). One way Multivariate Analysis of Variance (MAOVA) revealed significant differences in the various factors of physical self-concept among students of different disciplines. The calculated Wilks' lambda value 0.28, F value 3.18, ($p < 0.05$), were found to be significant at .05 level of significance. In order to determine, the sub-scales in which the vocational groups differed from each other, one way Analysis of Variance (ANOVA) was calculated. Factors in which there was a significant difference found among the groups, the posthoc tests were conducted to determine the groups varying significantly from each other.

■ **Key Words** : Physical self concept, Physical education, Management, Engineering students

■ **How to cite this paper** : Dachen, Jigmat and Acharya, Ashutosh (2012). Comparison of physical self-concept among physical education, management and engineering students. *Internat. J. Phy. Edu.*, 5 (2) : 151-154.

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Self-concept is often considered as one of the most important indicators of their academic achievement and social development. High self-concept is desirable not only because it is a positive outcome in and of itself, but also because it serves as an important mediator in enhancing other positive psychological variables and academic achievements (Marsh *et al.*, 2006). This study is based on multidimensional hierarchical model of self-concept. Physical self-concept is considered a multidimensional sub domain of the overall self-concept that incorporates different characteristics, such as physical activity, fitness conditions, health and appearance (Marsh *et al.*, 1994). Physical self-concept is an important mediator in physical activity as well as being a valuable outcome in itself. The physical self has occupied a unique position in the self-esteem system because

the body, through its appearance, attributes and abilities provides the substantive interface between individual and the world. Physical self-perceptions have also been shown to be positively related to social enhancement and psychological well-being such as depression, mood and psychological health (Sonstroem and Potts, 1986). Therefore, it could be hypothesized that physical education students would have higher level of physical self-concept than those of management and engineering students. The present study evaluates the differences among the students of various professional studies on the self-description regarding them. Historically, research on physical self-concept has been based on instruments that have treated physical self-concept as a relatively unidimensional domain (Wylie, 1979). These early self-concept instruments have often incorporated characteristics as diverse

as fitness, health, appearance, grooming, sporting competence, body image, sexuality, and physical activity into a single score. In recent decades, however, researchers have shifted the focus from physical self-concept as a unidimensional construct to a multi-faceted, hierarchical construct (Marsh *et al.*, 1994).

The increase of the bodily dimensions, the sexual maturation and the rapid rhythm of growth due to the puberty claim new psychomotor adjustments. Sport activity can contribute to sustain self-confidence and to provide pieces for the construction of a stable identity. Sport allows self-affirmation through physical performance, security in dealing with the body and opportunity for the development of social and emotional relationship with peers. To examine the hypotheses of the study, descriptive statistics such as mean and standard deviation and comparative statistics like one way-MANOVA (followed by one way-ANOVA) were used.

■ METHODOLOGY

Participants :

Participants in the study were 53 students attending different professional courses like physical education, engineering and business management, in various educational institutions like LNUPE, Prestige Institute of Management and Institute of Engineering, Jiwaji University in Gwalior, ranging from 18 to 23 years of age (mean age = 21.24.24, S.D. = 1.67).

Instruments :

For the purpose of collection of the data, the Physical Self-Description Questionnaire- Short Form (PSDQ-S by Herbert W. Marsh, 2010) were used. The Physical Self-Description Questionnaire (PSDQ) is a multidimensional, physical self-concept instrument designed to measure 11 scales: Strength (ST), Body Fat (BF), Activity (AC), Endurance/Fitness (EN), Sports Competence (SP), Coordination (CO), Health (HE), Appearance (AP), Flexibility (FL), Global Physical Self-concept (GP), and Global Esteem (GE). Marsh HW (1996) has investigated about Physical Self Description Questionnaire: stability and discriminant validity and found that across the 11 PSDQ scales, the internal consistency at each occasion was good (median alpha = .92) and the stability over time varied from median $r = .83$ for a 3-month period to median $r = .69$ for the 14-month period. The data were used to demonstrate the application of confirmatory factor-analysis models of multitrait-multimethod (MTMM) data (with occasions as the multiple methods), which supported the discriminant validity of the PSDQ scales. Based on the Physical Self Description Questionnaire (PSDQ) normative archive ($n = 1,607$ Australian adolescents), 40 of 70 items were selected by Marsh to construct a new short form (PSDQ-S). The PSDQ-S was evaluated in a new cross-validation sample of 708 Australian adolescents and four

additional samples: 349 Australian elite-athlete adolescents, 986 Spanish adolescents, 395 Israeli university students, 760 Australian older adults. Across these six groups, the 11 PSDQ-S factors had consistently high reliabilities and invariant factor structures. Study 1, using a missing-by-design variation of multigroup invariance tests, showed invariance across 40 PSDQ-S items and 70 PSDQ items. Study 2 demonstrated factorial invariance over a 1-year interval (test-retest correlations $.57-.90$; $Mdn = .77$), and good convergent and discriminant validity in relation to time. Study 3 showed good and nearly identical support for convergent and discriminant validity of PSDQ and PSDQ-S responses in relation to two other physical self-concept instruments.

Procedure :

After receiving permission from the students and the respective head of the institutions, the researchers administered the paper-pencil measures by visiting their classrooms in their institutions. All the students were made to understand what exactly was expected of them, and then an informed consent was obtained from the students prior to the administration of the test. Various students had some confusion and query regarding various aspects, which was being taken care of and the researchers left no stones unturned to ensure that the students' doubts are cleared.

Data analysis :

Statistical package for social sciences (SPSS version 17) was used for the purpose of analysis of the data. To examine the hypotheses of the study, descriptive statistics such as mean and standard deviation and comparative statistics like one way-MANOVA (followed by one way-ANOVA) were used.

■ OBSERVATIONS AND DISCUSSION

Table 2 demonstrates the descriptive statistics of different factors of self-description among students of three different professional groups *i.e.* BPE (Bachelor of Physical Education), BE (Bachelor of Engineering) and BBA (Bachelor of Business Administration).

One way Multivariate Analysis of Variance (MAOVA) revealed significant differences in the various factors of physical self concept among students of different disciplines. The calculated Wilks' lambda value 0.28, F value 3.179, ($p < 0.05$), were found to be significant at 0.05 level of significance (Table 1). In order to determine, the sub-scales in which the vocational groups differed from each other, one way Analysis of Variance (ANOVA) was calculated (Table 2

Table 1 : Multivariate analysis of variance (MANOVA)

Wilks' lambda value	F	Hypothesis df	Error df	Sig.
0.28	3.18	22.00	80.00	0.00

and Fig. 1). Factors in which there was a significant difference found among the groups, the posthoc tests were conducted to determine the groups varying significantly from each other. After the analysis, it was found that the following dependent variables had a significant difference: Health (HE) (F=4.27 , p=.019) Coordination (CO) (F= 4.24 , P= .020) Activity (AC) (F = 3.51 , p=.038) Body fat (BF) (F= 7.69, p= .001) Sports (SP) (F = 8.47, p= .001) Flexibility (FL) (F = 4.94 , p= .011) Endurance (EN) (F = 4.34, p =.018) (Among the three professional groups of students).

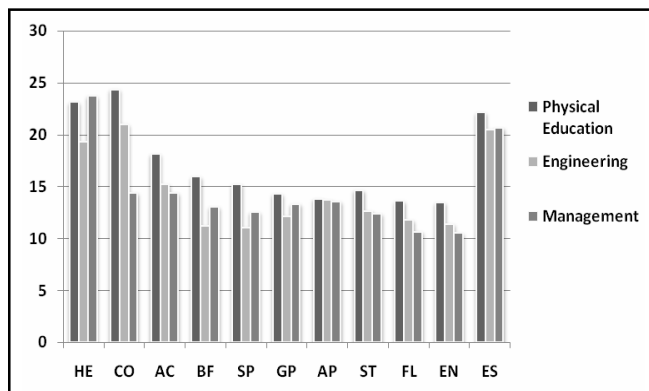


Fig. 1 : The mean scores of various factors of physical self - description among the physical education, engineering and management students

The post hoc test was applied and the following conclusions were drawn. There was a significant difference found, between the students of management and engineering profession in their perception towards their health (Mean difference = 4.44, p<0.05). The researchers had expected that there would be a significant difference in the variable of perception towards health among the physical education and

engineering as well as management students, surprisingly there was a difference between the management and engineering students but these two groups didn't have any difference with the physical education group of students. Physical activity patterns are learned through socialization processes where one of the influential sources is, through physical education classes in the colleges or universities. Boys' general perception of physical education classes seemed to be more positive than girls and physically active students perceived physical education classes more favourably than less physically active students.

Between the students of physical education and engineering profession in their perception towards their ability to coordinate the bodily movements The mean difference is 3.35 (p<0.05).

Between the students of management and physical education profession in their perception towards their ability to remain fit and doing physical activity on a regular basis the mean difference was 3.72 (p<0.05).

Between physical education and engineering students perception towards body fat, the mean difference was 4.71 (p<0.05).

Between physical education and engineering The mean difference was 4.17, (p<0.05). As well as physical education and management students on the perception towards sport the mean difference was 2.67 (p<0.05).

Between physical education and management students in their perception towards their flexibility, the mean difference was 2.92 (p<0.05).

Between physical education and management students in their perception towards cardio- respiratory fitness the mean difference was 2.97 (p<0.05).

There was a significant difference between the students of management and engineering profession in their perception

Table 2 : Descriptive statistics (mean and standard deviation)

Variables	BPE (n=17)	BE (n=18)	BBA (n=18)	"F" Value (2,50 df)	"p" Value
	M ± S.D.	M ± S.D.	M ± S.D.		
HE	23.12 ±4.32	19.28 ±6.12	23.72 ±4.07	4.27	.019*
CO	24.35 ±2.47	21.00 ±4.47	14.39 ±3.82	4.25	.020*
AC	18.12 ±2.69	15.22 ±4.19	14.39 ±5.59	3.51	.038*
BF	15.94 ±2.92	11.22 ±3.60	13.05 ±4.08	7.69	.001*
SP	15.23 ±1.79	11.05 ±2.46	12.55 ±4.24	8.4	.001*
GP	14.29 ±3.58	12.16 ±3.48	13.33 ±3.45	1.62	.208
AP	13.82 ±2.67	13.72 ±2.29	13.55 ±4.31	.03	.970
ST	14.64 ±1.58	12.66 ±3.23	12.39 ±2.45	2.73	.075
FL	13.59 ±2.69	11.77 ±2.77	10.66 ±2.83	4.94	.011*
EN	13.47 ±2.62	11.39 ±3.38	10.50 ±3.07	4.34	.018*
ES	22.12 ±4.21	20.50 ±3.18	20.66 ±2.42	1.23	.300

* Indicate significance of value at P=0.05, respectively



towards their ability to coordinate the bodily movements being the mean difference was 2.71 ($p < 0.05$).

The purpose of this study was to describe the participants' physical self-concept, to assess the differences among physical education, management and engineering students studying in various colleges.

There was significant difference among the self-concept variables of the students of various professional study groups. Hence, the Null hypothesis *i.e.* there is no significant difference in the self-description or the self-concept is rejected. The multivariate tests showed that there was significant effect of the different professional group of students on the combined dependent variables of self-description. Analysis of each dependent variable showed that there was no significant contribution of the groups towards global physical, strength and global esteem. The three groups differed collectively in their perception towards sports. In most of the variables of self-concept, the physical education students described themselves as better than the other two counter parts. Several studies have documented that athletes have higher self-concept than non-athletes (Moreno and Cervello, 2005; Ascii, 2004; Heather and Downs, 2001). In addition, women who identify themselves as more active have more positive self-perceptions with regard to physical ability, physical condition, strength, and physical self-concept than inactive people while men are more positive for physical ability, physical condition, and physical self-concept (Esnaola and Zulaika, 2009). Marsh (1994) found across all 10 physical self-concepts that there were substantial differences due to groups (athletes greater than no athletes), gender (males greater than females) and gender X group interactions (athletes less than no athletes in gender differences. Chung (2003) found that between physical education major students and non- physical education major students there were significant differences in various aspects of physical self-concept (activity, coordination, endurance, flexibility, global physical, sports competences and strength). Analysis of each dependent variable showed that there was no significant contribution of the groups towards Global physical and global esteem and this finding is in consonant with study undertaken by Zaharopoulos and Hodge, 1991. Overall physical education students have more positive physical self-concept as compared to engineering and management students. This may be attributed that athlete had invested heavily in their sports

performance and frequently received positive feedbacks regarding perception toward self in general and physical self perception in particular.

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