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A comparative study on selected physical fitness components and personality traits between deaf & dumb and normal school girls of West Bengal

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Abstract

Objective: The objective of the study was to compare the selected physical fitness components and personality traits between the Deaf & Dumb and Normal school girls of west Bengal.

Methodology: For the purpose of the study thirty seven (N=37) subjects were randomly chosen of which fifteen (N₁=15) were deaf and dumb girls and twenty two (N₂=22) were normal school girls. The age of the children ranged from 12 to 20 years. They were selected from three separate districts of West Bengal - Kolkata, Burdwan and Hooghly. The five different physical fitness components viz. Speed; Agility, Muscular endurance, Flexibility and Explosive leg strength and five personality traits viz. self confidence, dominance, introversion, neuroticism, and sociability were considered as variables for the present study. The data were collected by using standard tools and techniques.

Statistics: Mean, standard deviation (SD) and independent t- test were the statistics used in this study for data interpretation. Level of significant difference between two groups was set at $p < 0.05$. For statistical calculations Excel Spread Sheet of windows version 7 was used.

Results: Result of present study revealed that in Speed, Agility Flexibility and sociability significant difference had observed between the Normal and Deaf & Dumb Girls. But in Muscular Endurance, Explosive leg strength, Neuroticism, Introversion, Dominance & Self-confidence no significant difference was found between the Normal and Deaf & Dumb Girls.

Conclusion: It can be concluded from the results of the study that in speed, agility & sociability the normal girls are better than the deaf and dumb girls but the flexibility of the Deaf & Dumb girls are better than the normal girls.

Keywords: Deaf & Dumb, Normal girls, Physical Fitness Components, Personality Traits.

1. Introduction

'Deaf and Dumb' is the term commonly used to describe persons who, through deafness, are unable to hear the spoken words of others, and who, consequently, remain dumb. Deafness is the cause, dumbness the consequence. Thus the term "deaf and dumb" is a misnomer, for the deficiency is single, not two-fold, although in the result it affects the two organs of hearing and speech. Among various special populations deaf & dumb is a very common type of disability seen in our society not in a very negligible quantity.

Lack of ability to speak or hear accurately and effectively can have a profound influence on child's ability to acquire education, and to express him or her properly. There condition may also affect unfavorably his or her post-school adjustments particularly in vocational and social aspect of living. Proper placement of these children in school situations for successful education achievement is possible and need is now recognized. It is certainly agreed that physically challenged should have every opportunity to develop physically, mentally and socially to the highest degree possible, within their limitations through the most important media of movement activity and sports. Participation in physical activities can be an excellent means of integrating the physically challenged students with the society where he or she can achieve some success and group approval where ability is the prime consideration.

The inability to here or speak like normal people has great influence on the psychological make-up of these people. Generally, they like to mix-up with the people of the same group and avoid the normal people. Thus the personality development of these people become different from normal children, often they found remaining subdued. This subdued nature may have a great effect on critical thinking about something. So a positive approach and special care and

attention may help them to get rid of these difficulties and integrate them with the major portion of the people. It is needed to take special care and attention of this population from their childhood to give them ample opportunity to be self sufficient in future. That is why various schools have been established for the special populations in our country starting from late seventies up to date. It is needed not only to give them education but also to build a healthy body and mind for them having the prime necessity of physical education as well to make them conscious about their physique, health and fitness. Accordingly the present project was planned to initiate research work from a comparative standpoint to the physical fitness and personality traits of normal and deaf and dumb school girls of West Bengal.

2. Methodology

Total thirty seven (N=37) subjects were randomly chosen for this study of which fifteen (N₁=15) were deaf and dumb girls and twenty two (N₂=22) were normal school girls. The age of the children ranged from 12 to 20 years. They were selected from three separate districts of West Bengal-Kolkata, Burdwan and Hooghly. The five different physical fitness components i.e. Speed, Agility, Muscular endurance, Flexibility and Explosive leg strength and five personality traits viz. self confidence, dominance, introversion, neuroticism, and sociability were considered as variables for the present study. The different standard physical fitness tests were followed to measure several components. The speed was measured by 50m dash; Agility was measured by (4 x 10m) shuttle run; Muscular endurance was measured by Bent-Knee Sit-ups for 1 minute; flexibility by Modified sit and reach test; and explosive leg strength was measured by standing broad jump test. For measuring personality traits, Bengali version of Burn-Reuter personality inventory questionnaire (Bengali version was prepared by Prof. Dibakar Das Mahanto) was used on all the subjects of the present study. Apart from the above variables the age, height and weight of all the subjects were measured. Mean, standard deviation (SD) and independent t-test were the statistics used in this study for data interpretation. Level of significant difference between two groups was set at p<0.05.

3. Results

In **Table – 1**, the mean and standard deviation of age, height, and weight of the subjects for different groups have been presented.

Table 1: Descriptive statistics of the subjects of two groups in age, Height and weight

Sl. No.	Name of the Group	No. Of Subjects	Age (years)	Height (cm.)	Weight (Kg.)
			Mean ± S.D	Mean ± S.D	Mean ± S.D
1	Deaf & Dumb Girls	15	16.59 ± 2.38	151.34 ± 5.23	42.93 ± 6.87
2	Normal Girls	22	14.69 ± 2.30	148.18 ± 5.41	40.00 ± 6.10
Total no. of Subjects: (N) = 37					

Thus **Table-1** shows that the number of subjects for **Deaf & Dumb Girls** was 15 and the mean age of the subjects was

16.59 years with a standard deviation ± 2.38. The mean height was 151.34 cm. with a standard deviation of ± 5.23. The mean weight for the same age group was 42.93 kg with a standard deviation and range of ± 6.87. For **Normal Girls**, the number of subjects was 22 and the mean age of the subjects was 14.69 years with a standard deviation and range of ± 2.30. The mean height was 148.18 cm. with a standard deviation of ± 5.41. The mean weight for the same age group was 40.00 kg with a standard deviation and range of ± 6.10. **Table-1** also shows that the total number of subjects were 37.

In the **Figure-1**, mean age, height and weight of the subjects of two groups have been shown.

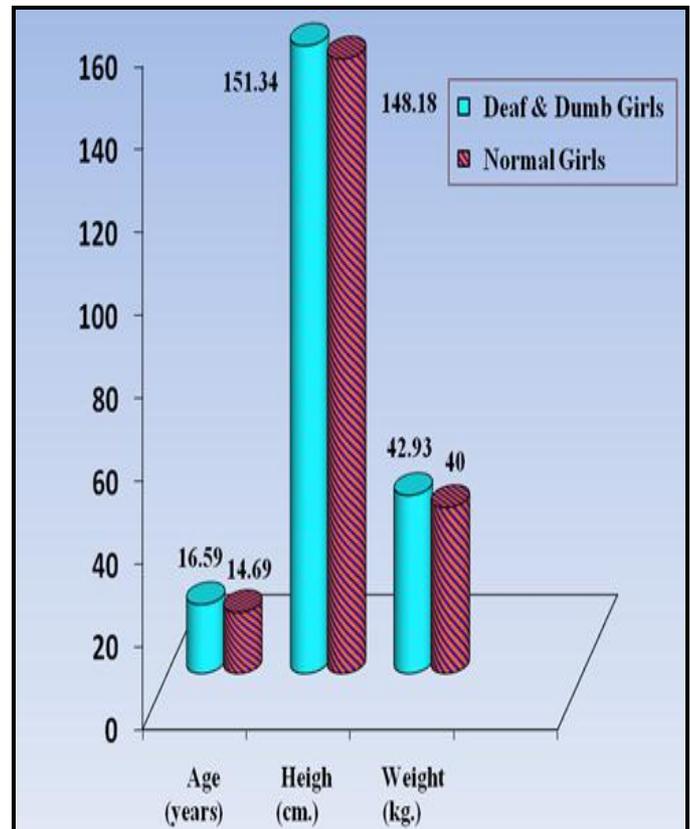


Fig 1: Mean Age, Height and Weight of the a Subjects of two Groups

The mean and standard deviation of obtained data belonging to physical fitness items viz. *speed* as measured by 30m dash, *agility* as measured by 4x10m shuttle run, *muscular endurance* as measured by bent knee sit ups for 1min, *flexibility* as measured by modified sit and reach test, *explosive leg strength* as measured by standing broad jump of normal and deaf & dumb girls and their respective Mean Difference, Standard Error, ‘t’ – value and ‘P’ – value have been presented in **Table- 2**. From **Table-2** it was found that the mean and standard deviation of Speed of normal girls were 4.74 ± 0.55 m/sec and deaf and dumb boy were 4.32 ± 0.56 m/sec, mean difference 0.422, standard error 0.186, t-value 2.264, p-value 0.0299. From the table value of ‘t’ at 0.05 level of confidence [df (35) = 2.03], it was observed that there had significant difference in speed between normal and hearing impaired girls of West Bengal. Thus in speed the normal girls were significantly better than the deaf & dumb girls of West Bengal. From **Table-2** it was also found that the mean and standard deviation of Agility of normal girls were 13.05 ± 1.20 sec and deaf and dumb boy students were 13.83 ± 0.87 sec. The mean difference was 0.776, standard error 0.341, t-value

2.1566, p-value 0.038. From the table value of ‘t’ at 0.05 level of confidence [df (35) = 2.03], it was observed that there had a significant difference in agility between normal and hearing

impaired girls of West Bengal. It was seen from the table that the normal girls were taken minimum time to perform 4x10 m shuttle run thus better in agility than the deaf & dumb girls.

Table 2: Mean, Standard Deviation, Mean Difference, Standard Error, t-value and p-value of Physical Fitness Components of Normal and Deaf & Dumb Girls

Name of the variables	(Mean ± SD)		Mean Difference	Standard Error	‘t’ value	‘P’ value
	Normal Girls	Deaf & Dumb Girls				
Speed (m/sec)	4.74 ± 0.55	4.32 ± 0.56	0.422	0.186	2.26*	0.039
Agility (Sec)	13.05 ± 1.20	13.83 ± 0.87	0.776	0.341	2.16*	0.038
Muscular Endurance (no. of sit-ups)	13.91 ± 5.81	13.13 ± 10.47	2.973	0.779	0.29	0.773
Flexibility (inch)	3.42 ± 2.53	9.16 ± 7.42	5.744	1.991	3.37*	0.002
Explosive leg strength (m)	1.263 ± 0.22	1.261 ± 0.16	0.002	0.063	0.03	0.976

Table value of ‘t’ at 0.05 level of confidence for df (35) = 2.03, * Sign indicates Significant difference.

From **Table-2** it was also found that the mean and standard deviation of Muscular Endurance (in no of sit-ups) of normal girls were 13.91 ± 5.81 and deaf & dumb girls were 13.13 ± 10.47, mean difference 2.973, standard error 0.779, t-value 0.2909, p-value 0.0593. From the table value of ‘t’-ratio [df (35) = 2.03] it was observed that there had no significant difference in muscular endurance between normal and deaf & dumb girls of West Bengal at 0.05 level of confidence. It was evident from the result that the values of muscular endurance was very closer to each other signifies that both the groups i.e. normal girls and deaf & dumb girls had almost same ability in muscular endurance. It was also found from **Table -2** that the mean and standard deviation of Flexibility of normal girls were 3.42 ± 2.53 inch and deaf & dumb girls were 9.16 ± 7.42 inch, and respective mean difference 5.744, standard error 1.991, t value 3.3708, p value were 0.0018. From the table value of ‘t’-ratio [df (35) = 2.03] it was observed that there had

significant difference in flexibility between normal and deaf& dumb girls of West Bengal at 0.05 level of confidence. It was also evident from Table -2 that the flexibility of the deaf& dumb girls was better than the normal girls. And from **Table-2** it was also found that the mean and standard deviation of explosive leg strength of normal girls were 1.263 ± 0.22 m. and deaf and dumb girls were 1.261 ± 0.16 m. respective mean difference 0.002, standard error 0.063, t-value 0.0301 and p-value were 0.9761. It was observed from the table that there was no significant difference existed in explosive leg strength between normal and deaf & dumb girls of West Bengal. It was also evident from the table that the values in explosive leg strength of the deaf & dumb girls and the normal girls were very closer to each other that signify almost equal ability of the groups. **Figure – 2** indicate the mean value of speed, agility, muscular endurance, flexibility and explosive leg strength of the normal and deaf & dumb girls of West Bengal.

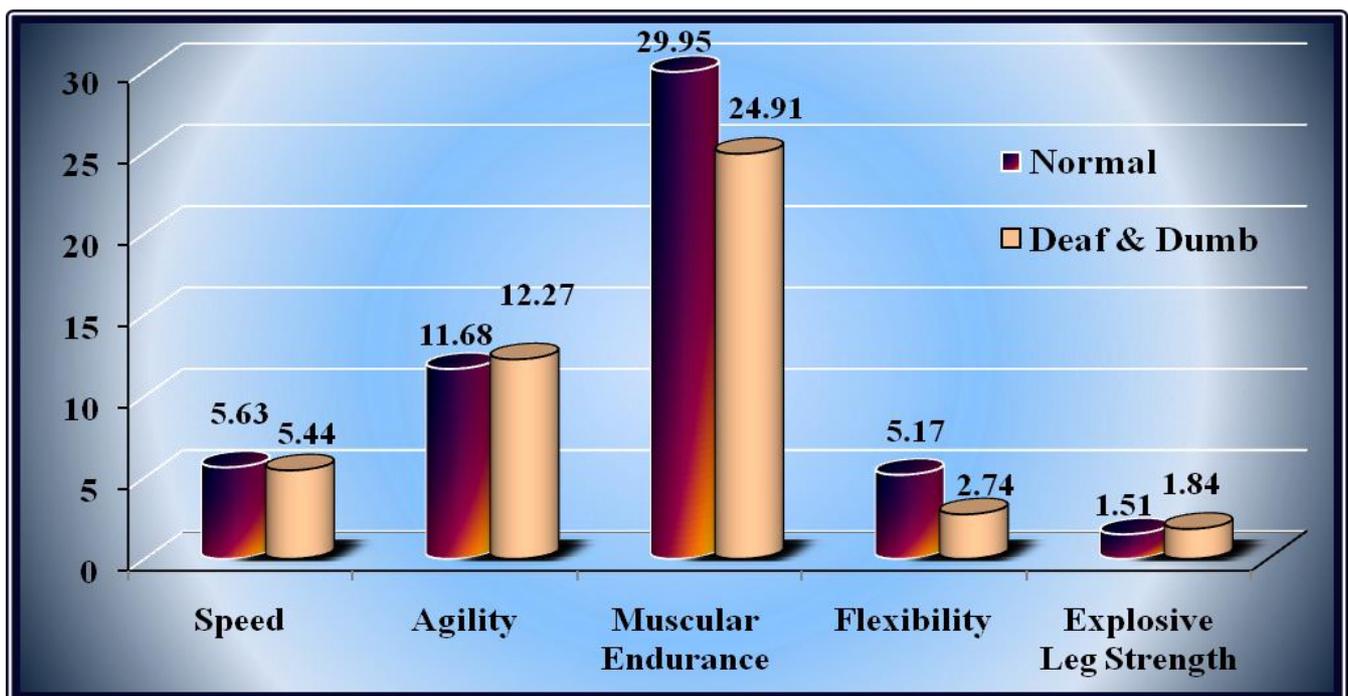


Fig 2: mean value of speed, agility, muscular endurance, flexibility and explosive leg strength of the normal and deaf & dumb girls of West Bengal.

The mean and standard deviation of obtained data belonging to personality traits i.e. Self-confidence, Dominance, Introversion, Neuroticism and Sociability of the normal and

deaf & dumb girls have been presented in **Table – 3**. In the said table the Mean difference; Standard error, t-value; and P-Value have also been presented.

Table 3: Mean, Standard Deviation, Mean Difference, Standard Error, t-value and p-value of Personality Traits of Normal and Deaf & Dumb Girls

Name of the variables	Mean \pm SD		Mean difference	Standard Error	't' value	'P' Value
	Normal Girls	Deaf & Dumb Girls				
Neuroticism	15.95 \pm 22.06	3.33 \pm 27.31	8.475	12.62	1.55	0.1298
Introversion	5.45 \pm 11.10	-0.40 \pm 14.14	5.85	4.350	1.41	0.1679
Dominance	1.32 \pm 16.70	5.60 \pm 16.95	4.28	5.641	0.76	0.4519
Self-confidence	13.45 \pm 30.69	3.27 \pm 36.08	10.18	11.39	0.92	0.3625
Sociability	-3.18 \pm 15.22	-20.27 \pm 20.29	17.09	6.163	2.93*	0.0059

Table value of 't' at 0.05 level of confidence for $df(35) = 2.03$, *Sign indicates Significant difference.

From **Table-3** it was found that the mean and standard deviation of **Neuroticism** of normal girls were 15.95 ± 22.06 and deaf & dumb girls were 3.33 ± 27.31 , mean difference 8.475, standard error 12.62, t-value 1.5512, and p-value 0.1298. From the table value of 't' at $p < 0.05$ level of confidence [$df(35) = 2.03$], thus, it had observed that there was no significant difference in Neuroticism between normal and deaf & dumb girls of West Bengal. In **Introversion**, the mean value and its standard deviation for normal girls were 5.45 ± 11.10 and deaf & dumb girls were -0.40 ± 14.14 , mean difference 5.85, standard error 4.350, t-value 1.4083, and p-value 0.1679. From the table value of 't', at $p < 0.05$ level of confidence [$df(35) = 2.03$], it was also observed that there had no significant difference in Introversion between normal and deaf & dumb girls of West Bengal. The mean and standard deviation of **Dominance** of normal girl's students were 1.32 ± 16.70 and deaf & dumb girl's students were 5.60 ± 16.95 , mean difference 4.28, standard error 5.641, t-value 0.7608 and p-value 0.4519. It was also observed from the table that there

was no significant difference in Dominance between normal and deaf & dumb girls of West Bengal. Again in **Self-confidence** the mean value and its standard deviation of normal girls were 13.45 ± 30.69 and deaf and dumb girls were 3.27 ± 36.08 , mean difference 10.18, standard error 11.39, t-value 0.9226 and p-value 0.3625. It was observed from the table that there was no significant difference in Self-confidence between normal and deaf & dumb girls of West Bengal. Lastly, in **Sociability** the mean and standard deviation of normal girls were -3.18 ± 15.22 and deaf & dumb girls were -20.27 ± 20.29 , mean difference 17.09, standard error 6.163, t-value 2.9289 and p-value 0.0059. It was recorded a significant difference in Sociability between normal and deaf & dumb girls of West Bengal as the t-value exceeds the table value i.e. [$df(35) = 2.03$] at $p < 0.05$. In **Figure – 3** the mean value of Self-confidence, Dominance, Introversion, Neuroticism and Sociability of the normal and deaf & dumb girls of West Bengal has been presented.

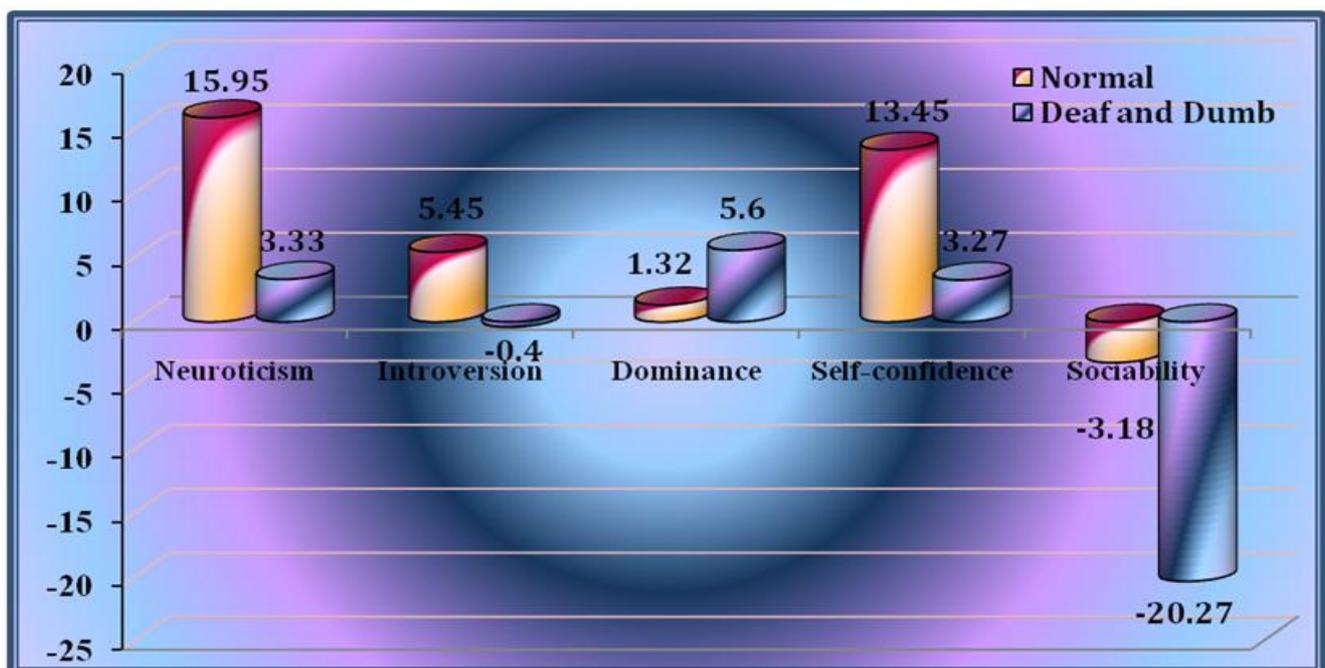


Fig 3: The mean value of Self-confidence, Dominance, Introversion, Neuroticism and Sociability of normal and hearing impaired girls.

4. Discussion

The results of the present study indicated that in Speed, Agility and flexibility significant differences were found between the Normal girls and Deaf & Dumb girls of West Bengal. Among these three variables deaf & dumb girls were better in flexibility than the normal girls. This results of the present study was in agreement with **Esther Hartman et al. (2007)** [1] and was not in consonance with **Adhikari, A. & Mukherjee; S., (2008)**. [7] But, in speed & agility, the result was reverse. This result of the present study was not in consonance with **Walowska, Jagoda; Bolach, Eugeniusz; (2011)** [14] and **Adhikari, A. & Mukherjee; S., (2008)** [7]. However, no significant difference was found in Muscular Endurance & Explosive leg strength between the Normal girls and Deaf & Dumb school girls of West Bengal. This result was in consonance with **Kathleen Ellis, (2000)** [10]. These results may be explained by the fact that due to auditory inability the deaf & dumb children use to avoid the playfield to play with the normal children that may hinders the development of motor quality like speed and agility to them. This was probably the cause of significant inferiority in speed and agility of acoustically impaired girls than the normal. Probably for this reason, the value of muscular endurance and explosive leg strength of the normal girls were better than the deaf & dumb girls, although not statistically significant. On the other hand significant superiority in flexibility than the normal girls may happen as flexibility developed more through static stretching exercises which can be exercised in room and gymnasium singly or by pair and no need to go to the play field for that. In this case the impaired girl subjects were very much habituated with this type of exercise through yoga & gymnastics in their school and this was probably the cause of significant superiority in flexibility of the deaf & dumb girls than the normal girls. Among the five personality traits, significant difference was found only in Sociability between the Normal girls and deaf & dumb (hearing impaired) girls of West Bengal. It was also observed that the normal girls were better in sociability than the deaf & dumb girls. This results may be explained by the fact that disability has a deep rooted depressive effect on the challenged population, hear indicating the hearing challenged school girls, which provoke them to confine within themselves or with the peers. Due to inability to hear, a challenged person suffers from inferiority complex and react more than a normal individual in an incidence. As they confine most of the time with themselves, reluctant to mix with normal individuals and rely most on self thus less social than normal individual. This result of the present study was in consonance with **Mondal, L. K.; & Chakraborty P. (2010)**[12].

5. Conclusion

On the basis of analysis of data the following conclusions can be drawn:-

- 1) In Speed, Agility, Flexibility and Sociability there are significant difference between the Normal and Deaf & Dumb girls of West Bengal. It also confirms that the Speed, Agility and Sociability of the normal girls are better than the deaf and dumb girls but the agility of the Deaf & Dumb girls are better than the normal girls.
- 2) In Muscular Endurance and Explosive Leg Strength no significant difference exists between the Normal and Deaf & Dumb Girls of West Bengal.
- 3) There are no significant difference in Neuroticism, Introversion, Dominance and Self-confidence between the Normal and Deaf & Dumb girls of West Bengal.

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