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## A Study on sleep quality index of male and female swimmers of Delhi (A comparative study)

**Priyanka Yadav and Nagma Parveen**

### Abstract

The investigator after a thorough study on the subject matter was motivated to undertake a study entitled "A Study on Sleep Quality Index of Male and Female Swimmers of Delhi. The objective of the Study was to compare between male and female swimmers of Delhi in regard to selected sleep quality index variables. The study was delimited to 40 swimmers age ranged from 14 to 21 years (25 male swimmers and 15 female swimmers of Delhi) state level Swimmers as Sample. Limitations of the study was questionnaire study. The hypothesis of the study was that. "There will be significant sleep differences between Male and Female Swimmers age ranging from 14 to 21 years in regard to selected sleep quality variables". Keeping in mind the scope of the study three questionnaire or scale were administered namely Pittsburgh sleep quality (index-A), Pittsburgh sleep quality (index-B) and Pittsburgh insomnia rating scale, following variables were selected Pittsburgh sleep quality index (PSQI-A) included the following variables namely sleep quality (SQ), sleep latency (SL), sleep duration (SD), habitual sleep efficiency (HSE), sleep disturbance (S.DIS), use of sleep medication (USM), daytime dysfunction (DTD), roommate (RM), total sleep score (T), Pittsburgh sleep quality index (PSQI-B) included the following variables namely sleep quality (SQ), sleep latency (SL), sleep duration (SD), habitual sleep efficiency (HSE), sleep disturbance (S.DIS), use of sleep medication (USM), daytime dysfunction (DTD), total sleep score (T) and Pittsburgh insomnia rating scale (PIRS) included the following variables namely distress score (DT), sleep parameters score (SPS), quality of life score (QLS) and total sleep score (TSS). The data was collected through personal visits by the scholar to the practice swimming pool (Shyama Prasad Mukherjee Swimming Pool, Talkatora, Delhi). The properly filled questionnaires (administered 32 questionnaires) were scored in accordance with the scoring key available. The scores were then tabulated in a tabular format for further statistical analysis. The data was analyzed with the help of descriptive statistics (mean and standard deviation) and the comparison between male and female swimmers were performed by computing 't'-test at 0.05 level of significance for testing of hypothesis.

**Keywords:** sleep quality index, swimmers

### Introduction

Swimming is an individual or team sports. Competitive is one of the most of popular Olympic sports with events namely butterfly, backstroke, breaststroke, freestyle, and individual medley. Olympic swimmers also take parts in relays. Swimmers can also compete in open water events in a sea and lake. Competitive swimming became popular in the 19<sup>th</sup> Century. The goal of competitive swimming is to break personal and world records while beating competitors in any given event. Swimming in competition should create the least resistance in order to attain maximum speed. Some professional's swimmers who do not hold a national or world ranking are considered the best in regards to their technical skills. Athlete goes through a cycle of training in which the body is overloaded with work in the beginning and middle segments of the cycle and then the workload is decreased in the final stage as the swimmers approaches competition. Sleep is a naturally periodic state of rest for the mind and body, in which the eyes usually close and consciousness is completely or partially lose, so that there is decrease in bodily movement and responsiveness to external stimuli. During sleep the brain in humans and other mammals undergoes a characteristics cycle of brain-wave activity that includes intervals of dreaming. Many of the world's greatest athletes eat, sleep, breathe, and live for their sport. But did you know that in addition to physical conditioning and conscious eating, sleep play a major role in athletic performance and competitive results. The quality and amount of sleep athletes get is often the key to winning. Sleep in particulars provides energy to both the brain and the body. If sleep is cut short, the body doesn't have time to repair memory consolidate

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memory and release hormones. A study in journal sleep confirms the role of sleep in performance with results that show declines in splits-second decision making following poor sleep.

### Materials and Methods

The researcher had selected 40 swimmers age ranged from 14 to 21 years. The study was delimited to 25 male swimmers and 15 female swimmers of Delhi. There was state level swimmers as sample. The purposive sampling technique was used to select subjects. The data was analyzed with the help of descriptive statistics (mean and standard deviation) and the comparison between male and female swimmers were performed by computing 't'-test at 0.05 level of significance for testing of hypothesis.

### Tool

According to the study three questionnaire or scale were administered namely Pittsburgh sleep quality (index-A),

Pittsburgh sleep quality (index-B) and Pittsburgh insomnia rating scale.

### Procedure

The data was collected through personal visits by the scholar to the practice swimming pool (Shyama Prasad Mukherjee Swimming Pool, Talkatora, Delhi). The direction and instruction given by researcher carefully. The properly filled questionnaires were scored in accordance with the scoring key available.

### Statistical Analysis

The data was analyzed with the help of descriptive statistics (mean and standard deviation) and the comparison between male and female swimmers were performed by computing 't'-test at 0.05 level of significance for testing of hypothesis.

**Table 1:** Descriptive Statistics of selected Variable of Pittsburgh Sleep Quality Index (PSQI-A)

SR. No	Variable	Gender	N	Mean	Std. Deviation	Std. Error Mean
1	Sleep quality	Male	25	1.04	.611	.122
		Female	15	.80	.561	.145
2	Sleep Latency	Male	25	1.24	1.052	.210
		Female	15	.73	.594	.153
3	Sleep duration	Male	25	1.16	.688	.138
		Female	15	.67	.724	.187
4	Habitual sleep efficiency	Male	25	.00	.000	.067
		Female	15	.07	.258	.115
5	Sleep Disturbance	Male	25	1.40	.577	.115
		Female	15	1.47	.640	.165
6	Use of sleep medication	Male	25	.20	.707	.141
		Female	15	.00	.000	.000
7	Day Time Dysfunction	Male	25	1.48	.963	.193
		Female	15	.87	.834	.215
8	Roommate	Male	25	.84	.746	.149
		Female	15	.93	.594	.153
9	Total sleep score	Male	25	7.36	2.871	.574
		Female	15	5.53	2.475	.639

Note: N=40; N1 (Male) =25; N2 (Female) = 15

According to Table1, the mean and standard deviation (M+S.D) score of sleep quality of male was 1.04+.61, sleep quality of female was .80+ .56, sleep of male was 1.24-+1.05, sleep latency of female was .73- .59, sleep duration of male was 1.16+ .68, sleep duration of female was .67+ .72, habitual sleep efficiency of male was .00+, habitual sleep efficiency of female was .07+.25. Sleep disturbance of

male was 1.40+ .577, sleep disturbance of female was 1.47+ .64. Use of sleep medication of male was .20+ .70 medication of female was .00+ .00. Day time dysfunction of male was 1.48+.963. Day time dysfunction of female was .87+.83 roommate of male was .84+ .74, roommate of female was .93+ .594. Total of male was 7.36 + 2.87, total of female was 5.53+ 2.47.

**Table 2:** Comparison between Male and Female Swimmers in regards to selected variable of Pittsburgh sleep Quality Index (PSQI-A)

S. No.	Variable	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
1.	Age	-.828 (NS)	38	.413	-.593	.716
		-.739 (NS)	20.640	.468	-.593	.802
2	Sleep Quality	1.239 (NS)	38	.223	.240	.194
		1.267 (NS)	31.680	.214	.240	.189
3.	Sleep Latency	1.704(NS)	38	.097	.507	.297
		1.946(*)	37.923	.059	.507	.260
4.	Sleep Duration	2.154(*)	38	.038	.493	.229
		2.126(NS)	28.423	.042	.493	.232
5.	Habitual Sleep Efficiency	-1.032(NS)	38	.201	-.067	.051
		-1.000(NS)	14.000	.334	-.067	.067
6.	Sleep Distribution	-.340(NS)	38	.736	-.067	.196
		-.331(NS)	27.226	.743	-.067	.202
7.	Use of sleep Medication	1.090(NS)	38	.283	.200	.184
		1.414(NS)	24.000	.170	.200	.141
8.	Day Time Dysfunction	2.047(*)	38	.048	.613	.300
		2.1249(*)	33.025	.041	.613	.289
9.	Roommate	-.412(NS)	38	.683	-.093	.227
		-.436(NS)	34.852	.665	-.093	.214
10.	Total sleep Score	2.048(*)	38	.048	1.827	.892
		2.127(*)	33.133	.041	1.827	.859

Note: N=40; N1 (Male) =25; N2 (Female) =15; (\*)= significant at 0.05 level;(NS)= Non significant at 0.05 level

According to the Table 2 the variable namely sleep quality (t=1.239), habitual sleep efficiency (t=-1.000), sleep disturbance (t=-.340), use of sleep medication (t=1.414), found to be statistically insignificant (not different) at 0.05

level were as variable namely sleep latency (t=1.946), sleep duration (t=2.154), day time dysfunction (t=2.047), total sleep score (t=2.045) are found to be statistically significant at 0.05 level of significant.

**Table 3:** Descriptive Statistics of selected variable of Pittsburgh sleep quality index (PSQI-B)

S. No.	Variable	Gender	N	Mean	Std. Deviation	Std. Error Mean
1.	Sleep Quality	Male	25	1.040	.611	.122
		Female	15	.800	.560	.144
2.	Sleep Latency	Male	25	1.240	1.052	.210
		Female	15	.733	.593	.153
3.	Sleep Duration	Male	25	1.160	.688	.137
		Female	15	.667	.723	.186
4.	Habitual Sleep Efficiency	Male	25	.000	.000	.000
		Female	15	.067	.258	.066
5.	Sleep Distribution	Male	25	1.400	.577	.115
		Female	15	1.467	.639	.165
6.	Use of sleep Medication	Male	25	.200	.707	.141
		Female	15	.000	.000	.000
7.	Day Time Dysfunction	Male	25	1.480	.962	.192
		Female	15	.867	.833	.215
8.	Total sleep Score	Male	25	6.520	2.518	.503
		Female	15	4.600	2.323	.600

Note: N=40; N1 (Male) =25; N2(Female)=15

According to the table 3 the Mean and standard deviation (M= S.D) score of sleep quality of male was 1.04+.61, sleep quality of female was .80+.56, sleep latency of male was 1.24+ 1.05, sleep latency of female was .73+ .59, sleep duration of male was 1.16+ .68 sleep duration of female was .66 +.72, habitual sleep efficiency of male was .00+.00, habitual sleep efficiency of female was .006+.25, sleep

disturbance of male was 1.40+.57, sleep disturbance of female was 1.46+.63, use of sleep medication of male was .20+.70, use of sleep medication of female was .00+.00, day time dysfunction of male was 1.48+.96, day time dysfunction of female was .86, total of male was 6.52+2.51, total of female was 4.60+2.32.

**Table 4:** Comparison between Male and Female Swimmers in regards to selected Variables of Pittsburgh Sleep Quality Index (PSQI)-B

S. No.	Variable	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
1.	Age	-.828 (NS)	38	.413	-.593	.716
		-.739 (NS)	20.640	.468	-.593	.802
2.	Sleep Quality	1.239 (NS)	38	.223	.240	.194
		1.267 (NS)	31.680	.214	.240	.189
3.	Sleep Latency	1.704(NS)	38	.097	.507	.297
		1.946(*)	37.923	.059	.507	.260
4.	Sleep Duration	2.154(*)	38	.038	.493	.229
		2.126(NS)	28.423	.042	.493	.232
5.	Habitual Sleep Efficiency	-1.032(NS)	38	.201	-.067	.051
		-1.000(NS)	14.000	.334	-.067	.067
6.	Sleep Distribution	-.340(NS)	38	.736	-.067	.196
		-.331(NS)	27.226	.743	-.067	.202
7.	Use of sleep Medication	1.090(NS)	38	.283	.200	.184
		1.414(NS)	24.000	.170	.200	.141
8.	Day Time Dysfunction	2.047(*)	38	.048	.613	.300
		2.124(*)	33.025	.041	.613	.289
9.	Total sleep Score	2.401(*)	38	.021	1.920	.799
		2.451(*)	31.548	.020	1.920	.783

Note: N=40; N1 (Male) =25; N2 (Female)=15;(\*) = Significant at 0.05 level; (NS) =Non significant at 0.05 level

According table 4 the variable namely sleep quality (t=1.239), habitual sleep efficiency (t=1.032), sleep disturbance (t=-.340), use of sleep medication (t=1.090) are found to be statistically insignificant (no different) at 0.05 level were as

variable namely sleep latency (t=1.704), sleep duration (t= 2.154), day time dysfunction (t=2.047) are found to be statistically significant (different) at 0.05 level of significance.

**Table 5:** Descriptive statistics of selected variable of Pittsburgh insomnia rating scale (PIRS)

S. No.	Variable	Gender	N	Mean	Std. Deviation	Std. Error Mean
1.	Distress	Male	25	39.760	23.964	4.792
		Female	15	30.600	19.426	5.015
2.	Sleep Parameters	Male	25	7.160	4.160	.8320
		Female	15	4.533	2.722	.7028
3.	Quality of life	Male	25	9.875	4.571	.9331
		Female	15	6.000	4.440	1.146
4.	Total sleep Score	Male	25	56.400	30.214	6.042
		Female	15	41.133	23.234	5.999

Note: N=40; N1 (Male) = 25; N2 (Female) =15

According to table – 5 the mean and standard deviation (M+D) Score of age of male was 15.940+ 1.745, age of female was 16.533+2.799, distress of male was 39.760 + 23.964, distress of female was 30.600+ 19.426 sleep parameter of

male was 7.160+ 4.160, sleep parameter of female was 4.533+ 2.722, quality of life of Male was 9.875+4.571, quality of life of female was 6.000+ 4.440, total of male was 56.400+30.214, total of female was 41.133+3.234.

**Table 6:** Comparison between male and female swimmers in regards to selected variable of Pittsburgh insomnia rating scale (PIRS)

S. No.	Variable	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
1.	Age	-.828 (NS)	38	.413	-.593	.716
		-.739 (NS)	20.640	.468	-.593	.802
2.	Distress	1.252 (NS)	38	.218	9.160	7.315
		1.320 (NS)	34.472	.195	9.160	6.937
3.	Sleep Parameters	2.176(*)	38	.036	2.626	1.207
		2.412(*)	37.627	.021	2.626	1.089
4.	Quality of life	2.603(*)	37	.013	3.875	1.488
		2.621(*)	30.536	.014	3.875	1.478
5.	Total sleep Score	1.679(NS)	38	.101	15.266	9.094
		1.793(NS)	35.502	.082	15.266	8.515

Note: N=40; N1 (Male)= 25; N2(Female)=15; (\*)=significant at 0.05 level; (NS) = Non significant at 0.05 level

According to table -6, “comparison between male and female swimmers in regards to selected variable of Pittsburgh insomnia rating scale (PIRS)” The variable namely age ( $t=-.828$ ), distress ( $t=1.252$ ), total sleep score ( $t=1.679$ ) found to be statistically insignificant (not different) at .05 level were as variable namely sleep parameter ( $t=2.176$ ), quality of life ( $t=2.603$ ) are found to be statistically (different) at 0.05 level of significance.

### Conclusion

From the findings the following have been concluded

- Male swimmers were superior than that of female swimmers in regards to variable namely sleep duration (SD), day time dysfunction (DTD) and total sleep score (T) OF PSQI-A.
- Female swimmers were superior than that of male swimmers in regards to variable namely sleep latency (SL). Sleep duration (SD), day time dysfunction (DTD) and total sleep score (T) OF PSQI-A.
- Male swimmers were superior than that of female swimmers in regards to variable namely sleep duration (SD), day time dysfunction (DTD) AND total sleep score (T) OF PSQI-B.
- Female swimmers were superior than that of male swimmers in regards to variable namely sleep latency (SL), Sleep duration (SD), day time dysfunction (DTD) And Total sleep score(T) of PSQI-B.
- Male swimmers were superior than that of female swimmers in regards to variable namely sleep parameter (SP) and quality of life (QL) OF PIRS.
- Female swimmers were superior than that of male swimmers in regards to variable namely sleep parameter (SP) AND quality of life (QL) of PIRS.

### Conclusions

From the findings the following have been concluded:-

- Male swimmers were superior than that of female swimmers in regard to variables namely sleep duration (SD), day time dysfunction (DTD) and total sleep score(T) of (PSQI-A).
- Female swimmers were superior than that of male swimmers in regard to variables namely sleep latency (SL), sleep duration (SD), day time dysfunction (DTD) and total sleep score(T) of PSQI-A.
- Male swimmers were superior than that of female swimmers in regard to variables namely sleep duration (SD), day time dysfunction (DTD) and total sleep

score(T) of PSQI-B.

- Female swimmers were superior than that of male swimmers in regard to variables namely sleep latency (SL), sleep duration (SD), day time dysfunction(DTD) and total sleep score(T) of PSQI-B.
- Male swimmers were superior than that of female swimmers in regard to variables namely sleep parameter (SP) and quality of life (QL) of PIRS.
- Female swimmers were superior than that of male swimmers in regard to variables namely sleep parameter (SP) and quality of life (QL) of PIRS.

### Recommendations

The following are the recommendation based on the present study.

- The study has a future to extract the various factors causing poor sleep quality of male and female swimmers of Delhi.
- After assessing the sleep quality sleep management program can be developed and adopted.
- The study is helpful to conduct similar type of study on different groups e.g. different sports.
- The finding of the study has motivated some other scholars to research on group specific population.
- The finding of the study has added knowledge to existing knowledge.
- The finding and result of the study has analyzed sleep quality of randomly selected male and female swimmers of Delhi.
- The finding and result of the study have served as database.
- The finding and result of the study are helpful to know the level of sleep quality in male and female swimmers.
- The finding and result of the study have served as reference.

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