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A comparative study: To analyze the difference between sedentary and sports-engaging children through mindfulness

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Abstract

Objective: To compare and analyze the difference between sedentary and sports-engaging children through five facets of mindfulness.

Methodology: The purpose of the research was to conduct a comparative evaluation to analyze the difference between children living sedentary lifestyles with that of regular participating children, through five-facet mindfulness questionnaires by Baer *et al.* (2006). A total of 54 male subjects were selected for the above two-mentioned groups from Gwalior city, by using the random sampling technique. All the participants who were engaged in sports were participants of the All-India National Level. Five facets of mindfulness were taken in this study as an I.V. (Independent Variable) and D.V. (Dependent Variable) were the participants of the two groups assigned for the current study. The test was measured on the five-facet mindfulness questionnaire by Baer *et al.* (2006). Subjects were informed about the test and its very functioning beforehand the test took place.

Conclusion: From the evaluation of the test results on SPSS 25 by Descriptive statistics and independent t-test. It was found that children who participated in regular sports activity showed a significant difference at a 0.05 level of significance on all the five facets of mindfulness.

Keywords: Sports-engaging, sports activity, mindfulness questionnaire

Introduction

Many individuals who subscribe to the rationalist worldview see meditation as something that monks resurrected from Asia to the West many years ago. However, throughout the last several decades, a significant number of psychological and neuroscientific research on the effects of meditation have been carried out. These scientists contend that meditation can assist individuals in achieving mental calm and contentment in addition to improving one's physical health, memory, and motivation; lowering daily stress; and even preventing the recurrence of depressive episodes; Finally, there is preliminary evidence to suggest that one may be able to turn genes on and off. The practice of mindfulness, which has its origins in the teachings of early Buddhism, may be understood in several different ways to accommodate its application within the framework of modern psychological research^[1]. The practice of mindfulness is often defined as the act of intentionally and non-critically bringing one's attention (or being aware of) to one's unfolding experiences on a moment-to-moment basis with an attitude of openness, wonder, and acceptance^[2-4]. Studies have shown that there is a relationship between our ideas, feelings, language representations, higher cognitive functions, and the way we interpret what we see^[5]. The outcomes of this research reveal that students who practice yoga have an increase in fundamental cognitive functions such as attention, memory, perception, and observation^[6]. This improvement is significantly impacted by students who practice yoga for an extended period. School students who exercised unilateral breathing showed an improvement of 84% in their visual memory and verbal cognitive abilities, according to research that was conducted by Naveen and colleagues^[7]. Yoga and meditation both boost neurogenesis and neuroplasticity; hence, they may be used as a crucial technique to improve cognition and behavior without creating any adverse consequences, in contrast to the impacts that medicine has^[8].

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The present study compares children who are living a sedentary lifestyle with regular sports-participating children based on the five-facet mindfulness questionnaire.

Methodology

The purpose of the research was to conduct a comparative evaluation to analyze the difference between children living sedentary lifestyles with that of regular sports-engaging children, through five-facet mindfulness questionnaires by Baer *et al.* (2006) [2]. A total of 54 male subjects were selected for the above two-mentioned groups from Gwalior city, by using the Random sampling technique. All the participants who were engaged in sports were participants of the All-India National Level. The test item selected for analyzing the study was the five-facet mindfulness questionnaire. The test was administered under the supervision of 2 research scholars and an expert to avoid the Non-response Error and to mitigate any confounding effects. Each subject took 15 minutes to respond to all the questions.

Items of the test

The Five Factor Mindfulness Questionnaire is a self-administered survey with 39 questions that measures the five components of mindfulness: observing (8 questions), describing (8 questions), acting with awareness (8 questions), being non-judgmental (8 questions), and not reacting (8

questions) (7 items). The participants provided their ratings using a Likert scale that ranged from 1 (never or very rarely true) to 5 (very frequently or always true). The scores for each aspect ranged anywhere from 8 to 40, with the exception of the non-reactive component, which ranged anywhere from 7 to 35. When it comes to the aspects that were rated, a higher total score indicates a better degree of awareness.

Statistics

To know the nature of the data and for testing the assumption of descriptive statistics (mean, standard deviation), All data are presented as mean with standard deviations. An Independent t-test was used to detect the mean differences between each of the two groups. For this purpose, Statistical Package for Social Science (SPSS) version, 20.0 was used. The level of significance was set at 0.05.

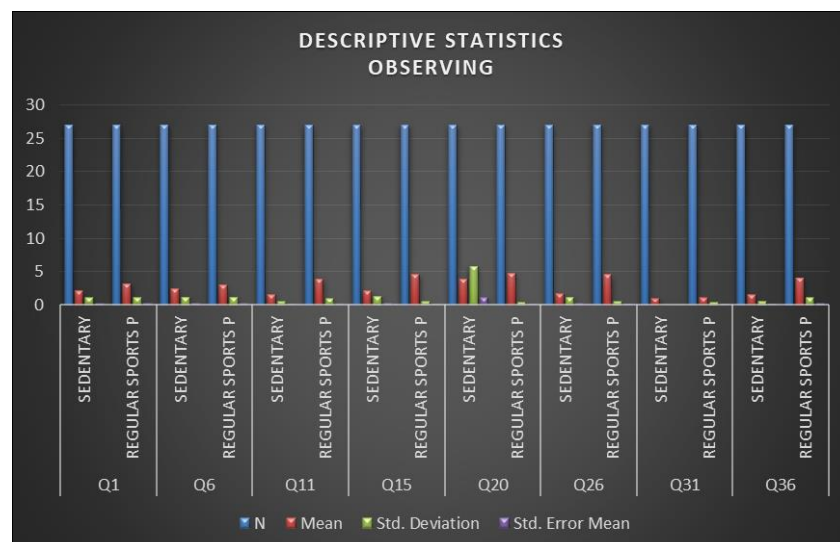
Analysis of the data

For the analysis of data, Descriptive Statistics were applied which were mean and standard deviation. Furthermore, an independent t-test was used to obtain the mean difference. For analyzing if there is a violation in Homoscedasticity of variance i.e., False rejecting the Null Hypothesis, Levene's Test was employed on all five units in the Questionnaire. For this study, the level of significance was set at α 0.05.

Table 1: Group Statistics

	Observing	N	Mean	Std. Deviation	Std. Error Mean
Q1	Sedentary	27	2.1111	1.05003	.20208
	Regular Sports P	27	3.1852	1.11068	.21375
Q6	Sedentary	27	2.4074	1.18514	.22808
	Regular Sports P	27	2.9630	1.19233	.22946
Q11	Sedentary	27	1.5556	.50637	.09745
	Regular Sports P	27	3.8889	.97402	.18745
Q15	Sedentary	27	2.1111	1.31071	.25225
	Regular Sports P	27	4.5185	.50918	.09799
Q20	Sedentary	27	3.8889	5.79345	1.11495
	Regular Sports P	27	4.7407	.44658	.08594
Q26	Sedentary	27	1.6667	1.17670	.22646
	Regular Sports P	27	4.5185	.50918	.09799
Q31	Sedentary	27	1.0000	.00000	.00000
	Regular Sports P	27	1.0741	.38490	.07407
Q36	Sedentary	27	1.5185	.57981	.11158
	Regular Sports P	27	4.0741	1.10683	.21301

The above-mentioned Table 1 the descriptive group statistics for the first facet "Observing".



Graph 1: Observing", descriptive statistics

Above mentioned table 2 shows the mean differences through the independent t-test on one of the five facets of mindfulness “Observing”.

Table 2: Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Q1	Equal variances assumed	1.933	.170	-3.651	52	.001	-1.07407	.29415	-1.66433	-.48382
	Equal variances not assumed			-3.651	51.837	.001	-1.07407	.29415	-1.66438	-.48377
Q6	Equal variances assumed	.003	.955	-1.717	52	.092	-.55556	.32353	-1.20477	.09366
	Equal variances not assumed			-1.717	51.998	.092	-.55556	.32353	-1.20478	.09366
Q11	Equal variances assumed	2.071	.156	-11.044	52	.000	-2.33333	.21127	-2.75727	-1.90939
	Equal variances not assumed			-11.044	39.097	.000	-2.33333	.21127	-2.76063	-1.90604
Q15	Equal variances assumed	5.766	.020	-8.896	52	.000	-2.40741	.27061	-2.95043	-1.86439
	Equal variances not assumed			-8.896	33.673	.000	-2.40741	.27061	-2.95755	-1.85726
Q20	Equal variances assumed	17.108	.000	-.762	52	.450	-.85185	1.11826	-3.09580	1.39210
	Equal variances not assumed			-.762	26.309	.453	-.85185	1.11826	-3.14915	1.44545
Q26	Equal variances assumed	4.784	.033	-11.558	52	.000	-2.85185	.24675	-3.34699	-2.35672
	Equal variances not assumed			-11.558	35.407	.000	-2.85185	.24675	-3.35257	-2.35113
Q31	Equal variances assumed	4.326	.042	-1.000	52	.322	-.07407	.07407	-.22271	.07457
	Equal variances not assumed			-1.000	26.000	.327	-.07407	.07407	-.22634	.07819
Q36	Equal variances assumed	15.880	.000	-10.627	52	.000	-2.55556	.24047	-3.03809	-2.07302
	Equal variances not assumed			-10.627	39.270	.000	-2.55556	.24047	-3.04184	-2.06927

Table 3: Describing group statistics

	Describing	N	Mean	Std. Deviation	Std. Error Mean
Q2	Sedentary	27	1.5556	.84732	.16307
	Regular Sports P	27	4.4815	1.12217	.21596
Q7	Sedentary	27	1.6296	.74152	.14271
	Regular Sports P	27	3.7037	.82345	.15847
Q32	Sedentary	27	3.4074	.79707	.15340
	Regular Sports P	27	3.5556	.80064	.15408
Q12	Sedentary	27	2.5926	1.15223	.22175
	Regular Sports P	27	2.7407	.85901	.16532
Q37	Sedentary	27	1.5556	.50637	.09745
	Regular Sports P	27	4.0741	.78082	.15027
Q16	Sedentary	27	1.4074	.50071	.09636
	Regular Sports P	27	3.5556	1.31071	.25225
Q22	Sedentary	27	2.8519	1.37851	.26529
	Regular Sports P	27	3.0741	1.20658	.23221
Q27	Sedentary	27	1.7037	.66880	.12871
	Regular Sports P	27	3.4074	.88835	.17096

The above-mentioned Table 3 the descriptive group statistics for the Second facet “Describing”.

Table 4: Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Q2	Equal variances assumed	1.068	.306	-10.812	52	.000	-2.92593	.27061	-3.46895	-2.38291
	Equal variances not assumed			-10.812	48.374	.000	-2.92593	.27061	-3.46992	-2.38194
Q7	Equal variances assumed	.695	.408	-9.726	52	.000	-2.07407	.21326	-2.50201	-1.64614
	Equal variances not assumed			-9.726	51.439	.000	-2.07407	.21326	-2.50212	-1.64603
Q32	Equal variances assumed	.016	.899	-.681	52	.499	-.14815	.21742	-.58444	.28814
	Equal variances not assumed			-.681	51.999	.499	-.14815	.21742	-.58444	.28814
Q12	Equal variances assumed	3.363	.072	-.536	52	.594	-.14815	.27659	-.70316	.40687
	Equal variances not assumed			-.536	48.080	.595	-.14815	.27659	-.70424	.40795
Q37	Equal variances assumed	.271	.605	-14.062	52	.000	-2.51852	.17910	-2.87791	-2.15912
	Equal variances not assumed			-14.062	44.582	.000	-2.51852	.17910	-2.87934	-2.15769
Q16	Equal variances assumed	19.639	.000	-7.955	52	.000	-2.14815	.27002	-2.68999	-1.60630
	Equal variances not assumed			-7.955	33.430	.000	-2.14815	.27002	-2.69725	-1.59905
Q22	Equal variances assumed	1.635	.207	-.630	52	.531	-.22222	.35256	-.92969	.48525
	Equal variances not assumed			-.630	51.104	.531	-.22222	.35256	-.92999	.48554
Q27	Equal variances assumed	2.024	.161	-7.961	52	.000	-1.70370	.21400	-2.13312	-1.27429
	Equal variances not assumed			-7.961	48.307	.000	-1.70370	.21400	-2.13390	-1.27350

Above mentioned table 4 shows the mean differences through the independent t test on one the five facet of mindfulness “Describing

Table 5: Group Statistics

	Act with Awareness	N	Mean	Std. Deviation	Std. Error Mean
Q5	Sedentary	27	1.2963	.46532	.08955
	Regular sports p	27	4.0370	1.09128	.21002
Q8	Sedentary	27	1.3704	.88353	.17004
	Regular sports p	27	3.8148	.87868	.16910
Q34	Sedentary	27	1.7778	.75107	.14454
	Regular sports p	27	3.8148	.87868	.16910
Q13	Sedentary	27	2.5185	1.18874	.22877
	Regular sports p	27	4.4444	.64051	.12327
Q18	Sedentary	27	1.6296	.56488	.10871
	Regular sports p	27	2.7037	1.20304	.23152
Q38	Sedentary	27	1.2963	.54171	.10425
	Regular sports p	27	3.5926	1.27880	.24611
Q23	Sedentary	27	1.4815	.84900	.16339
	Regular sports p	27	4.7778	.42366	.08153
Q28	Sedentary	27	1.8148	1.07550	.20698
	Regular sports p	27	4.5185	.50918	.09799

The above-mentioned table 5 the descriptive group statistics for the Third facet "Act with Awareness".

Table 6: Independent Samples Test

Act with awareness		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Q5	Equal variances assumed	47.768	.000	-12.004	52	.000	-2.74074	.22831	-3.19888	-2.28260
	Equal variances not assumed			-12.004	35.152	.000	-2.74074	.22831	-3.20417	-2.27732
Q8	Equal variances assumed	.102	.750	-10.193	52	.000	-2.44444	.23981	-2.92565	-1.96324
	Equal variances not assumed			-10.193	51.998	.000	-2.44444	.23981	-2.92565	-1.96324
Q34	Equal variances assumed	2.197	.144	-9.157	52	.000	-2.03704	.22246	-2.48343	-1.59064
	Equal variances not assumed			-9.157	50.770	.000	-2.03704	.22246	-2.48369	-1.59038
Q13	Equal variances assumed	9.334	.004	-7.411	52	.000	-1.92593	.25987	-2.44739	-1.40446
	Equal variances not assumed			-7.411	39.923	.000	-1.92593	.25987	-2.45117	-1.40068
Q18	Equal variances assumed	16.490	.000	-4.199	52	.000	-1.07407	.25578	-1.58733	-.56082
	Equal variances not assumed			-4.199	36.933	.000	-1.07407	.25578	-1.59236	-.55579
Q38	Equal variances assumed	29.233	.000	-8.592	52	.000	-2.29630	.26728	-2.83262	-1.75997
	Equal variances not assumed			-8.592	35.040	.000	-2.29630	.26728	-2.83887	-1.75372
Q23	Equal variances assumed	6.807	.012	-18.052	52	.000	-3.29630	.18260	-3.66272	-2.92988
	Equal variances not assumed			-18.052	38.193	.000	-3.29630	.18260	-3.66590	-2.92670
Q28	Equal variances assumed	14.553	.000	-11.806	52	.000	-2.70370	.22900	-3.16323	-2.24417
	Equal variances not assumed			-11.806	37.098	.000	-2.70370	.22900	-3.16767	-2.23974

Above mentioned table 6 shows the mean differences through the independent t-test on one of the five facets of mindfulness "Act with Awareness".

Table 7: Group Statistics

	Non judging	N	Mean	Std. Deviation	Std. Error Mean
Q3	Sedentary	27	1.1852	.55726	.10725
	Regular sports p	27	3.6667	1.41421	.27217
Q10	Sedentary	27	1.7778	.42366	.08153
	Regular sports p	27	4.0741	.87380	.16816
Q14	Sedentary	27	1.5926	.57239	.11016
	Regular sports p	27	4.0741	.95780	.18433
Q17	Sedentary	27	1.4444	.97402	.18745
	Regular sports p	27	4.5926	.50071	.09636
Q25	Sedentary	27	1.5556	.50637	.09745
	Regular sports p	27	4.2963	1.03086	.19839
Q30	Sedentary	27	2.0741	.95780	.18433
	Regular sports p	27	4.2222	.80064	.15408
Q35	Sedentary	27	1.8519	2.08850	.40193
	Regular sports p	27	4.0370	.75862	.14600
Q39	Sedentary	27	1.8519	.81824	.15747
	Regular sports p	27	4.4815	.84900	.16339

The above-mentioned table 7 the descriptive group statistics for the Fourth facet "Nonjudging".

Table 8: Independent Samples Test

Non judging		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Q3	Equal variances assumed	30.890	.000	-8.483	52	.000	-2.48148	.29253	-3.06849	-1.89447
	Equal variances not assumed			-8.483	33.884	.000	-2.48148	.29253	-3.07606	-1.88691
Q10	Equal variances assumed	9.457	.003	-12.287	52	.000	-2.29630	.18689	-2.67131	-1.92128
	Equal variances not assumed			-12.287	37.584	.000	-2.29630	.18689	-2.67477	-1.91783
Q14	Equal variances assumed	3.827	.056	-11.556	52	.000	-2.48148	.21474	-2.91238	-2.05058
	Equal variances not assumed			-11.556	42.471	.000	-2.48148	.21474	-2.91469	-2.04827
Q17	Equal variances assumed	1.641	.206	-14.937	52	.000	-3.14815	.21077	-3.57109	-2.72521
	Equal variances not assumed			-14.937	38.845	.000	-3.14815	.21077	-3.57452	-2.72177
Q25	Equal variances assumed	9.097	.004	-12.400	52	.000	-2.74074	.22103	-3.18427	-2.29721
	Equal variances not assumed			-12.400	37.857	.000	-2.74074	.22103	-3.18825	-2.29323
Q30	Equal variances assumed	1.108	.297	-8.941	52	.000	-2.14815	.24025	-2.63024	-1.66606
	Equal variances not assumed			-8.941	50.415	.000	-2.14815	.24025	-2.63060	-1.66570
Q35	Equal variances assumed	.697	.408	-5.110	52	.000	-2.18519	.42763	-3.04328	-1.32709
	Equal variances not assumed			-5.110	32.743	.000	-2.18519	.42763	-3.05546	-1.31492
Q39	Equal variances assumed	.319	.575	-11.588	52	.000	-2.62963	.22692	-3.08498	-2.17428
	Equal variances not assumed			-11.588	51.929	.000	-2.62963	.22692	-3.08499	-2.17426

Above mentioned table 8 shows the mean differences through the independent t-test on one of the five facets of mindfulness “Non judging”.

Table 9: Group Statistics

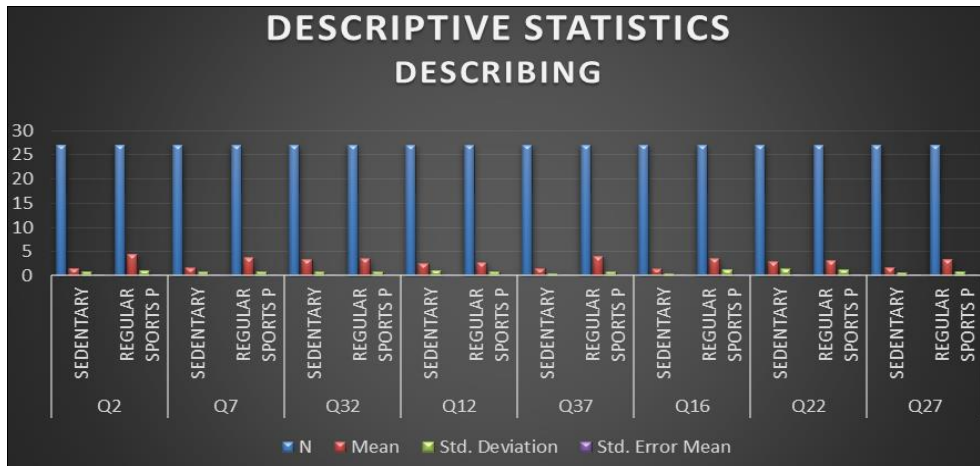
	Nonreactive	N	Mean	Std. Deviation	Std. Error Mean
Q4	Sedentary	27	2.0741	.54954	.10576
	Regular sports p	27	4.4074	.50071	.09636
Q9	Sedentary	27	1.9259	.61556	.11847
	Regular sports p	27	3.9259	.91676	.17643
Q19	Sedentary	27	1.9259	1.03500	.19919
	Regular sports p	27	4.4074	.57239	.11016
Q21	Sedentary	27	1.6667	1.00000	.19245
	Regular sports p	27	3.6667	1.00000	.19245
Q24	Sedentary	27	1.4815	.50918	.09799
	Regular sports p	27	3.8148	1.07550	.20698
Q29	Sedentary	27	1.6296	.83887	.16144
	Regular sports p	27	4.2222	.84732	.16307
Q33	Sedentary	27	2.3704	1.07946	.20774
	Regular sports p	27	4.2593	.65590	.12623

The above-mentioned table 9 the descriptive group statistics for the fifth facet “Nonreact”.

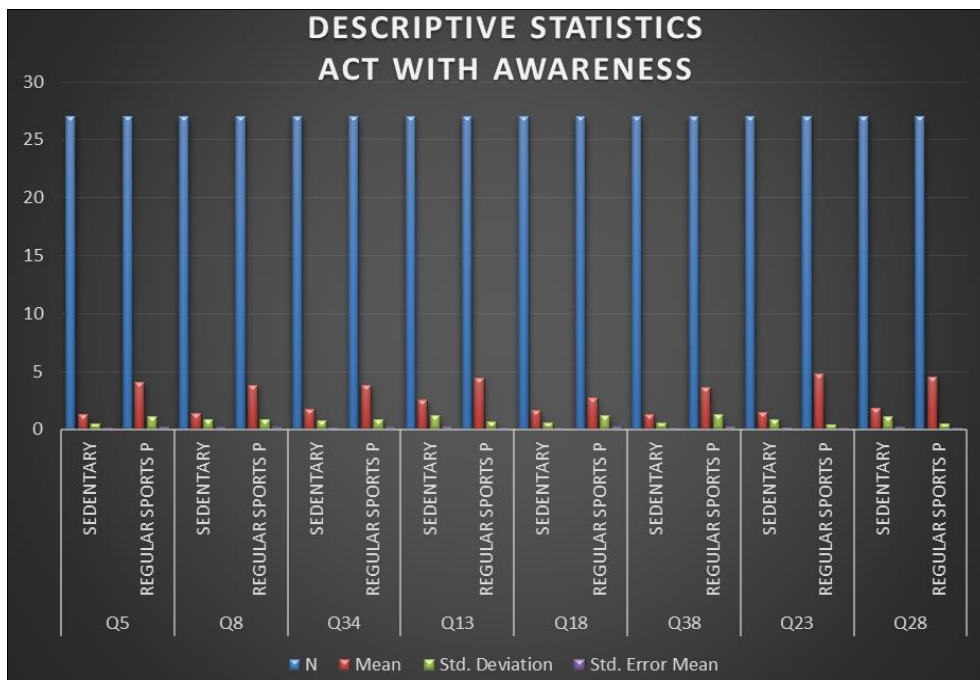
Table 10: Independent Samples Test

Nonreactive		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Q4	Equal variances assumed	2.805	.100	-16.308	52	.000	-2.33333	.14308	-2.62044	-2.04623
	Equal variances not assumed			-16.308	51.556	.000	-2.33333	.14308	-2.62049	-2.04617
Q9	Equal variances assumed	3.198	.080	-9.411	52	.000	-2.00000	.21251	-2.42644	-1.57356
	Equal variances not assumed			-9.411	45.484	.000	-2.00000	.21251	-2.42790	-1.57210
Q19	Equal variances assumed	1.099	.299	-10.902	52	.000	-2.48148	.22762	-2.93823	-2.02473
	Equal variances not assumed			-10.902	40.544	.000	-2.48148	.22762	-2.94132	-2.02164
Q21	Equal variances assumed	.084	.773	-7.348	52	.000	-2.00000	.27217	-2.54614	-1.45386
	Equal variances not assumed			-7.348	52.000	.000	-2.00000	.27217	-2.54614	-1.45386
Q24	Equal variances assumed	7.349	.009	-10.189	52	.000	-2.33333	.22900	-2.79286	-1.87380
	Equal variances not assumed			-10.189	37.098	.000	-2.33333	.22900	-2.79730	-1.86937
Q29	Equal variances assumed	.035	.852	-11.298	52	.000	-2.59259	.22946	-3.05305	-2.13214
	Equal variances not assumed			-11.298	51.995	.000	-2.59259	.22946	-3.05305	-2.13214
Q33	Equal variances assumed	6.403	.014	-7.770	52	.000	-1.88889	.24309	-2.37668	-1.40110
	Equal variances not assumed			-7.770	42.895	.000	-1.88889	.24309	-2.37915	-1.39863

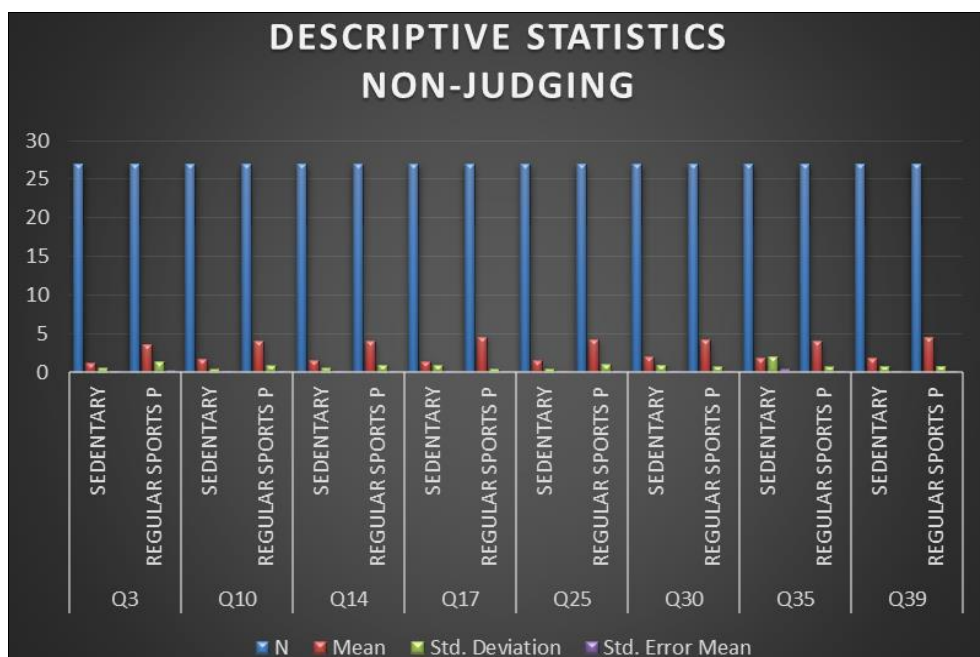
Above mentioned table 10 shows the mean differences through the independent t-test on one of the five facets of mindfulness “Nonreact”.



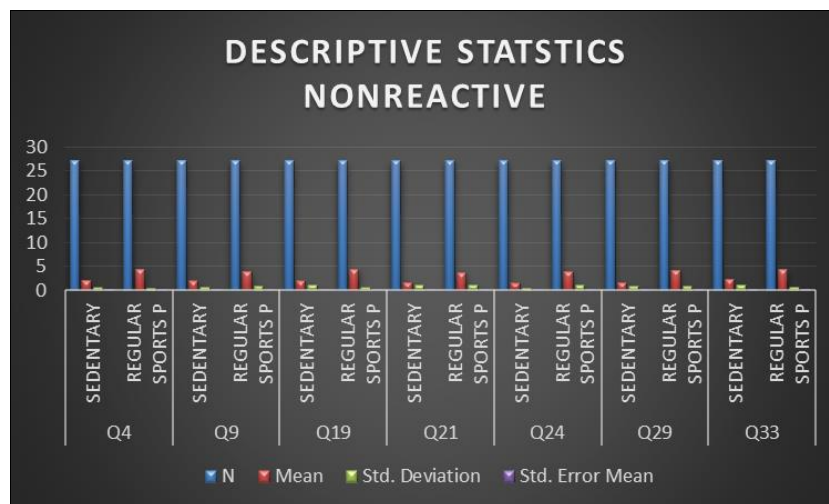
Graph 2: “Describing”, descriptive statistics



Graph 3: “Act with awareness”, descriptive statistics



Graph 4: “Non-judging”, descriptive statistics



Graph 5: "Nonreactive", Descriptive statistics

Conclusion

Based on the data meaning and statistical analysis of results, the researchers finally reached the conclusions of this study on all the five facets of the mindfulness levels of the children who were regular participants of sports activities, which have shown a significant difference at 0.05 level of significance. Results showed on the first facet i.e., observation entails that children who participate in regular sports activities project a better way of how they use their sensory awareness. It involves how much they see, feel, and perceive the internal and external world around them and select the stimuli that require their attention and focus. Results showed on the second facet statements evaluating descriptive qualities study showed that the children who participate in regular sports activities project way better label their experiences and express them in words to them and others. The third facet of the mindfulness factor shows that mindfulness is closely related to self-awareness and calculated actions. In this facet of the test, the outcome was the children who participated in regular sports activities the movements they chose better in comparison to those children who did not participate in sports or live a sedentary lifestyle after attending to the information present at the moment. It delves deep into whether we can act out of quick judgment get out of autopilot mode and act more with awareness. The fourth facet of the mindfulness factor of Non-judgmental showed that children who are exposed to regular sports activities have more experience that is tied in and not letting the inner critic take a toll on their happiness and positive state of mind. It calls for self-acceptance and unconditional empathy for them and others. The fifth facet of the mindfulness factor refers to active detachment from negative thoughts and emotions so that we can accept their existence and choose not to react to them. Hence from the results obtained, it is evident that children who participated in regular sports activity showed that non-reactivity made way for the period due to the involvement in sports for emotional resilience and restoring mental balance (McManus, Surrey, Muse, Vazquez-Montes, & Williams, 2012).

The Five Facet Mindfulness Questionnaire, or FFMQ, is a multifactorial scale that was created by Baer *et al.* (2006) [2]. As a result of its useful psychometric features, the FFMQ has seen widespread use. Observing, describing, acting with awareness, refraining from passing judgment on one's inner experience, and not responding to one's own inner experience are the five components that make up the FFMQ. The word "observe" is being used in this context to indicate a person's

capacity to become aware of, as well as pay attention to, his or her perceptions, emotions, and ideas. The ability to put one's thoughts, emotions, and experiences into words is what's meant when people talk about their capacity to explain themselves. To behave with awareness is to pay attention to what is going on around you and to be able to steer clear of distractions. The concept of "non-judging of inner experience," sometimes written as "non-judging from her onward for simplicity," refers to the idea that an individual does not pass judgment on his or her own experiences, emotions, or ideas. Finally, the capacity to detect and be aware of one's sensations, emotions, and ideas without being affected by them is what is meant by "non-reactivity to inner experience," which will be referred to simply as "non-reactivity" from this point forward for the sake of clarity. It has been shown that the original version of the FFMQ has strong internal consistency and construct validity. Furthermore, the positive and negative correlations of FFMQ mindfulness components with associated domains suggest that this scale may be used to predict psychiatric symptoms (Baer *et al.*, 2006) [2]. The FFMQ's conception of mindfulness is promising for practical applications, even though there have been some surprising results relating to the observed component (Baer *et al.*, 2006, 2008) [2].

Recommendations

1. A longitudinal and cross-sectional study can be done using sports athletes from individual sports or team sports.
2. A study can be done among athletes from close combat sports.

About the authors

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Conflict of interest statement

The authors declare no conflicts of interest.

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