

Self-Esteem and Performance in Attentional Tasks in School Children after 4½ Months of Yoga

Abstract

Introduction: Physical activity is known to improve self-esteem of children. Low self-esteem causes distraction of attention which leads to decline in performance in attentional tasks. The performance of a child at school depends on multiple factors, a major factor being attention. Hence, the present study was designed to see (i) the effect 4½ months of yoga practice had on children's (a) performance in attentional tasks, (b) self-esteem and (ii) the correlation between yoga performance and (a) academic performance, (b) behavior with peers, (c) behavior with teachers, (d) punctuality, (e) participation in extra-curricular activities. **Methods:** Participants were 116 children with group mean age \pm standard deviation; 10.2 ± 0.6 years. We assessed them for (i) self-esteem using Indian Adaptation of Battle's Self Esteem Inventory for Children and (ii) performance in attentional tasks using two different tests, i.e., six letter cancellation test (SLCT) and digit letter substitution test (DLST) and (iii) the teacher's rating scale which analyzed the teacher's assessment of the children's academic performance, behavior with peers, behavior with teachers, punctuality, yoga practice, and participation in extracurricular activities on an analog scale, before and after the intervention. Data were analyzed with PASW (SPSS Statistics 24) using the *t*-test for paired data. **Results:** There was a significant improvement in the scores of (i) SLCT ($P < 0.001$), (ii) DLST ($P < 0.001$), (iii) social self-esteem ($P < 0.01$), (iv) academic self-esteem ($P < 0.001$), and (v) total self-esteem ($P < 0.001$) after 60 min/day of yoga practice for 4½ months. Pearson correlation showed a positive correlation between yoga performance and the behavior with teachers ($r = 0.221$ and $P < 0.05$). **Conclusions:** Yoga practice is beneficial for school children as it improves attention, concentration, memory, motor speed, and self-esteem (social, academic and total). In addition, improved yoga performance improves behavior with teachers, thus improving discipline in school.

Keywords: Attention, children, performance, self-esteem, yoga

Introduction

Yoga helps in the mental development and well-being of school going children.^[1] Self-esteem is a student's general feeling of doing well in school, level of satisfaction with his/her achievements and the attitude that one has toward oneself.^[2] Increasing incidence of mental health issues and bullying in India may be attributed to low self-esteem and a sense of purposelessness among children.^[3] In a study, it was found that 30% of the adolescents suffer from behavioral and emotional issues.^[4] Another study reported that children studying in residential schools may have issues related to self-esteem.^[5] People with low self-esteem are more conscious of themselves than people with high self-esteem^[6] which leads to the distraction of attention.^[7] Therefore, their performance

in an attentional task is lower as compared to a person with high self-esteem. High levels of attention help children to follow instructions given in the classroom, focus better on assignments and easily engage in completing them.^[8] Hence, performance of a child at school is associated with multiple intrinsic factors such as attention, memory, and motor speed.^[9] Physical activity is known to improve the self-esteem of children.^[10] Keeping this in mind, the present study was designed to see (i) the effect, 4½ months of yoga practice had on children's (a) performance in attentional tasks, (b) self-esteem and (ii) the correlation between yoga performance and (a) academic performance, (b) behavior with peers, (c) behavior with teachers, (d) punctuality, (e) participation in extracurricular activities.

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: reprints@medknow.com

How to cite this article: Gulati K, Sharma SK, Telles S, Balkrishna A. Self-esteem and performance in attentional tasks in school children after 4½ months of yoga. *Int J Yoga* 2019;12:158-61.

Received: June, 2018. **Accepted:** September, 2018.

**Kankan Gulati,
Sachin Kumar
Sharma,
Shirley Telles,
Acharya Balkrishna**

*Patanjali Research Foundation,
Patanjali Yogpeeth, Haridwar,
Uttarakhand, India*

Address for correspondence:

*Dr. Shirley Telles,
Patanjali Research
Foundation, Patanjali
Yogpeeth, Haridwar - 249 405,
Uttarakhand, India.
E-mail: shirleytelles@gmail.com*

Access this article online

Website: www.ijoy.org.in

DOI: 10.4103/ijoy.IJOY_42_18

Quick Response Code:



Methods

Subjects

The total sample was 116 children (78 boys) with group mean age \pm standard deviation (SD); 10.2 ± 0.6 years. The present study with a sample size of 116 using Cohen's formula for the effect size 0.53 (medium) and an alpha of 0.05 had a power of 0.99 (G*Power 3.1). The Cohen's d was calculated from mean and standard deviation value of scores in the Six Letter Cancellation Test (SLCT) which showed the least change in magnitude among the attentional tasks was used in the present study. The inclusion criteria were (i) children of both sexes who were willing to participate in the study and (ii) those whose ages were between 9 and 12 years. The exclusion criteria were (i) any physical or mental illness based on routine case history and medical examination due to which they were not able to complete the assessments (ii) those that did not complete the questionnaires required for the study. None of the participants had to be excluded from the study due to the above-mentioned reasons. Participation in the study was voluntary with no remuneration.

Study design

The present study was a longitudinal follow-up study where the participants were selected using a convenience sampling technique i.e., participants were selected based on their availability to take part in the trial. Prior approval from the principal of the school was obtained. The study had the approval of the institution's ethics committee, with an approval number YRD-017/026.

Assessments

The participants were assessed for (i) self-esteem using Indian Adaptation of Battle's Self Esteem Inventory for Children (SEIC) and (ii) performance in attentional tasks using two different tests i.e., SLCT and digit letter substitution test (DLST) and (iii) the Teacher's Rating Scale (TRS) which analyzed the teacher's assessment of the children's academic performance, behavior with peers, behavior with teachers, punctuality, yoga practice, and participation in extracurricular activities on an analog scale. The order of assessments was as follows: (i) SLCT, (ii) DLST and (iii) SEIC and (iv) TRS.

Intervention

Children practiced yoga (breathing techniques, postures, guided relaxation, and chanting), 60 min each day, 7 days a week. The yoga session began with Om chanting (2 min), followed by *Pratah kaleen mantra paath* (6 min). Then, loosening practices i.e., *yogic sukshma vyayama* (10 min) were taught. For warm up children were made to do *Suryanamaskar* (Sun salutation)/*Bhuminamaskar* (Earth salutation)/*Chandranamaskar* (Moon salutation) (5 min). The yoga session proceeded with *asanas* (15 min) which included

standing postures-*Chandrasana* (Moon posture) with left and right hand, *Tadasana* (Palm tree posture), *Vrikshasana* (Tree posture); sitting postures – *Padmasana* (Lotus posture), *Yogmudrasana* (Psychic union posture), *Matsyasana* (Fish pose), *Janushirshasana* (Head-to-knee posture) with left and right leg, *Paschimottanasana* (Back stretching posture), *Aakarnadhanurasana* (Archer's yoga posture) with left and right leg, *Vakasana* (Crane posture) with left and right leg, *Gomukhasana* (Cow's face posture), *Vajrasana* (Diamond posture) with left and right leg, *Ushtrasana* (Camel posture), *Shashankasana* (Rabbit posture); supine postures-*Uttanpadasana* (Raised legs posture), *Sarvangasana* (Shoulder stand posture), *Halasana* (Plough posture), *Naukasana* (Boat posture); prone postures-*Bhujangasana* (Cobra posture), *Shalabhasana* (Locust posture), *Dhanurasana* (Bow posture). Succeeding these practices, *Yoga Nidra* (3 min), *Pranayama* (15 min) including *Bhastrika* (Bellows breathing), *Kapalabhati* (High frequency yoga breathing), *Ujjayi* (Victorious breathing), *Anulom-vilom* (Alternate nostril yoga breathing), *Chandrabhedhi* (Left nostril yoga breathing), *Suryabhedhi* (Right nostril yoga breathing), *Naadishuddhi* (Alternate-nostril yoga breathing), *Sheetali* (Cooling breath), *Sheetkaari* (Hissing breath), *Bhramari* (Bumble bee breathing), *Udgeeth* (OM chanting) were exercised followed by 1 min each of meditation, *Hasyasana* (Laughter yoga) and *Gayatri mantra* with meaning. The session was closed with *Shanti path* (Mantra Chanting).

Data analysis

Data were analyzed with PASW IBM SPSS Statistics 24 (Armonk, New York) using the t-test for paired data.

Results

There was a significant improvement in the scores of (i) SLCT ($P < 0.001$), (ii) DLST ($P < 0.001$), (iii) social self-esteem ($P < 0.01$), and (iv) academic self-esteem ($P < 0.001$) and (v) total self-esteem ($P < 0.001$) after 60 min/day of yoga practice for 4½ months. Pearson correlation showed a positive correlation between yoga performance and the behavior with teachers ($r = 0.221$ and $P < 0.05$) [the group mean \pm SD. are given in Table 1].

Discussion

The increase in scores of SLCT and DLST can be related to the fact that yoga practice improves attention, enhances concentration, boosts memory (visual and spatial)^[11,12] and elevates motor speed^[13] in school children. Improvement in social, academic and total self-esteem on pre-post comparison can be supported by findings from earlier studies which state that yoga helps in promoting a positive attitude, increasing confidence, recovering self-esteem, and reducing stress and anxiety of school children.^[14,15] The present study also showed a decline in the scores of

Table 1: Results of six letter cancellation test, digit letter substitution test, and self-esteem measures in 116 children before and after yoga

Variables	Before/after	Mean±SD	Significance level (P)	Cohen's d
SLCT scores	Before	20.12±6.83	<0.001***	0.53
	After	24.07±7.99		
DLST scores	Before	44.17±10.78	<0.001***	0.56
	After	49.89±9.62		
General self-esteem scores	Before	15.63±2.10	<0.001***	0.15
	After	15.29±2.23		
Social self-esteem scores	Before	6.78±1.54	<0.01**	0.01
	After	6.81±1.54		
Academic self-esteem scores	Before	8.90±1.29	<0.001***	0.17
	After	9.16±1.06		
Parental self-esteem scores	Before	8.25±1.09	>0.05	0.22
	After	8.48±0.97		
Total self-esteem scores	Before	39.56±4.30	<0.001***	0.04
	After	39.75±3.95		

** $P < 0.01$, *** $P < 0.001$, paired sample *t*-test used to compare before and after values. SLCT=Six letter cancellation test, DLST=Digit letter substitution test, SD=Standard deviation

general self-esteem in a span of 4½ months. The possible causes of the decline in the self-esteem of children studying in a residential school might be the lack of parental support,^[5] medium of language used to impart education,^[16] and migration from one school to the other.^[17] Yoga improves discipline^[18] and self-awareness which influences counter-normative behavior^[19] in children. This may explain the positive correlation between yoga performance and improvement in behavior with teachers. Earlier studies assessed the effect of yoga on children attending day school.^[20] The present study is the first attempt to evaluate the effect of yoga on children studying in a residential school. One limitation of the present study was that it did not have a control group.

Conclusions

Yoga practice is beneficial for school children as it improves attention, concentration, memory, motor speed, and self-esteem (social, academic, and total). In addition, improved yoga performance improves behavior with teachers, thus improving discipline in school.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

References

- Hagen I, Nayar US. Yoga for children and young people's mental health and well-being: Research review and reflections on the mental health potentials of yoga. *Front Psychiatry* 2014;5:35.
- Baron RA, Byrne D. *Social Psychology: Understanding Human Interactions*. 6th ed. Boston: Allyn and Bacon Inc.; 1991.
- Gandhi R. Children's Safety Via Well-Being and self-Esteem. Available from: <https://www.blogs.timesofindia.indiatimes.com/toi-edit-page/childrens-safety-via-well-being-self-esteem/>. [Last accessed on 2018 Jun 04].

- Pathak R, Sharma RC, Parvan UC, Gupta BP, Ojha RK, Goel N. Behavioural and emotional problems in school going adolescents. *Australas Med J* 2011;4:15-21.
- Ing RN. The Effects of residential schools on native child-rearing practices. *Can J Native Educ* 1991;18:65-118.
- Skaalvik EM. Gender differences in general academic self concept and success expectations on defined academic problems. *J Educ Psychol* 1990;82:591-98.
- Brockner J, Hulton AJ. How to reverse the vicious cycle of low self-esteem: The importance of attentional focus. *J Exp Soc Psychol* 1978;14:564-78.
- Rudasill KM, Gallagher KC, White JM. Temperamental attention and activity, classroom emotional support, and academic achievement in third grade. *J Sch Psychol* 2010;48:113-34.
- Das M, Deepeshwar S, Subramanya P, Manjunath NK. Influence of yoga-based personality development program on psychomotor performance and self-efficacy in school children. *Front Pediatr* 2016;4:62.
- Nair S, Ganjiwale J, Kharod N, Varma J, Nimbalkar SM. Epidemiological survey of mental health in adolescent school children of Gujarat, India. *BMJ Paediatr Open* 2017;1:e000139.
- Telles S, Hanumanthaiyah B, Nagarathna R, Nagendra HR. Improvement in static motor performance following yogic training of school children. *Percept Mot Skills* 1993;76:1264-6.
- Naveen KV, Nagarathna R, Nagendra HR, Telles S. Yoga breathing through a particular nostril increases spatial memory scores without lateralized effects. *Psychol Rep* 1997;81:555-61.
- Dash M, Telles S. Yoga training and motor speed based on a finger tapping task. *Indian J Physiol Pharmacol* 1999;43:458-62.
- Serwacki ML, Cook-Cottone C. Yoga in the schools: A systematic review of the literature. *Int J Yoga Therap* 2012;22: 101-9.
- Khalsa SB, Hickey-Schultz L, Cohen D, Steiner N, Cope S. Evaluation of the mental health benefits of yoga in a secondary school: A preliminary randomized controlled trial. *J Behav Health Serv Res* 2012;39:80-90.
- Wright SC, Taylor DM. Identity and the language of the classroom: Investigating the impact of heritage versus second language instruction on personal and collective self-esteem.

- J Educ Psychol 1995;87:241-52.
17. Altinyelken HK. Migration and self-esteem: A qualitative study among internal migrant girls in turkey. *Adolescence* 2009;44:149-63.
 18. Slovacek SP, Tucker SA, Pantoja L. A study of the Yoga Ed Program at the Accelerated School. Los Angeles: Program Evaluation and Research Collaborative, Charter College of Education; 2003.
 19. Diener E, Wallbom M. Effects of self-awareness on antinormative behavior. *J Res Pers* 1976;10:107-11.
 20. Telles S, Singh N, Bhardwaj AK, Kumar A, Balkrishna A. Effect of yoga or physical exercise on physical, cognitive and emotional measures in children: A randomized controlled trial. *Child Adolesc Psychiatry Ment Health* 2013;7:37.