

Short Communication

Yoga Practice in a School Setting Positively Impacts Self-esteem : A 13 Month Follow-up Study

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Abstract

The present study is a sequel of a randomized controlled trial where the effect of 3 months of yoga or physical exercise on physical, cognitive and self-esteem measures have been assessed in 98 school children in December, 2010. A 13 month follow-up study was conducted in February, 2012. The present study had two aims: (i) to determine whether any of the participants of the yoga group continued to practice yoga though it was not supervised, 13 months later, and (ii) to determine whether there was any difference within the yoga group between practitioners and those who had stopped practicing. 26 school children were available at the day of follow-up who belonged to the yoga group in the original study. Out of 26 children, 13 were practicing yoga (mean age \pm S.D. = 11.9 \pm 0.6 years) and another 13 were not practicing yoga (mean age \pm S.D. = 11.6 \pm 1.1 years). They were followed up 13 months later. Signed informed consent was taken and the study was approved by the Ethics Committee of Patanjali Research Foundation. The study was a longitudinal retrospective study. At follow-up, self-esteem of the participants was measured using Battle's Self-Esteem Inventory. Apart from this, a follow-up survey form about yoga practice was given to all the participants. Data were analyzed by Student's t-tests using PASW Version 18.0. Within the yoga group, total and parental self-esteem had significantly improved after 13 months of unsupervised home practice of yoga when the data of the group who were practicing yoga were compared with those who were not practicing yoga. Apart from these findings, this follow-up study also indicates that 50 percent of the students were motivated to practice yoga in their own time when unsupervised.

Introduction

Self-esteem can be defined as an individual's attitude about themselves, involving self-evaluation along a

positive-negative dimension (1). There are different types of self-esteem such as general, social, academic, parental and total self-esteem (2). Self-esteem is essential for optimal health; low self-esteem especially in pre-teens might cause difficulty in interpersonal relationships, teenage pregnancies, loneliness, eating disorders and suicidal tendencies (3). An epidemiological survey in India showed a prevalence of 7 to 12 percent of emotional and behavioral problems in children (4). These problems can be managed in part by the enhancement of self-esteem in pre-teen, school children.

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Self-esteem and school adjustment of children in primary school has a close relationship with the development of personality and mental health (5). A study provides significant evidence that the intervention of *Maum* meditation (a meditation program) had positive effects on self-esteem and school adjustment of children in the early stage of primary school (5). Yoga plays a significant role in enhancing one's mental health. Previously, a randomized controlled trial was conducted to compare the effects of yoga with physical exercise on physical, cognitive and self-esteem measures in 98 school children (6). In this study, comparable effects were found of yoga and physical exercise on physical fitness and the Stroop task performance in school children after three months of the two interventions in after-before comparisons while social self-esteem was higher in the physical exercise group in a between groups comparison of after values of the two groups. A significant increase was found after yoga in total, general and parental self-esteem in a within group comparison when compared to before yoga. Hence the present study was conducted to see the effect of unsupervised yoga on self-esteem alone in the school children.

The present study is a sequel of the above mentioned trial (6). A 13 month follow-up study was conducted in February, 2012. The present study had two aims: (i) to determine whether any of the participants of the yoga group continued to practice yoga though it was not supervised, 13 months later, and (ii) to determine whether there was any difference within the yoga group between practitioners and those who had stopped practicing. The physical exercise group was not included in this study, as physical exercise is a part of the ongoing curriculum of the school.

Material and Methods

26 school children were available at the day of follow-up who belonged to the yoga group in the original study (6). Out of these 26 children, 13 were practicing yoga (mean age \pm S.D. = 11.9 \pm 0.6 years; gender ratio (boys : girls) = 7 : 6) and another 13 were not practicing yoga (mean age \pm S.D. = 11.6 \pm 1.1 years; gender ratio (boys : girls) = 8 : 5). They were followed up 13 months later. The participants (i) belonged to

an urban location, (ii) their socio-economic status was categorized as lower middle class (7), and (iii) the primary language spoken at their homes was not English. Signed informed consent was taken from the Principal of the school who informed the parents about the study. The parents gave their informed consent after receiving the information from the Principal of the school. The present study was approved by the Ethics Committee of Patanjali Research Foundation (approval number: PRF/12/0010) and the original study (6) was registered in the Clinical Trials Registry of India (CTRI/2012/11/003112). The study was a longitudinal retrospective study. At follow-up self-esteem of the participants was measured using the same questionnaire (6) whose reliability and validity has been established in an Indian population (2). The questionnaire has 50 close-ended questions with 4 subscales for general (20 items), social (10 items), academic (10 items) and parental self-esteem (10 items).

Apart from this, a follow-up survey form about yoga practice was given to all the participants. It had a question which was close-ended and binomial that is 'Are you continuing to practice yoga after December, 2010' (Yes/No)? Scoring of the self-esteem inventory was carried out by an individual who was blinded to which group the participants belonged.

Data were analyzed by Student's t-tests using PASW Version 18.0. Within the group originally allocated to yoga (n=26, in 2010), 13 were practicing yoga in 2012. For analysis, t-tests for unpaired data were used to compare the level of self-esteem between those who were practicing yoga compared to those who were not practicing yoga.

Results

The group mean values \pm SD for different sub scales of self-esteem within the yoga group (between those who were practicing yoga with those who were not practicing yoga) after 13 months of follow-up are given in Table I. Within the yoga group, total self-esteem (Cohen's d=0.838) and parental self-esteem (Cohen's d=0.223) had significantly improved after 13 months of unsupervised home practice of yoga when the data

TABLE 1: The Indian adaptation of Battle's self-esteem inventory. Values are group mean±S.D.

Groups	Group practicing Yoga (n = 13)	Group not practicing Yoga (n = 13)	Cohen's d
Total score of Self-Esteem	38.23±3.85	35.31±3.12*	0.838
General Self-Esteem	14.62±2.22	13.85±1.95	0.369
Social Self-Esteem	6.38±1.61	6.00±1.58	0.238
Academic Self-Esteem	8.54±0.88	7.85±1.28	0.639
Parental Self-Esteem	8.69±0.63	7.62±1.12**	0.223

*p<.05; **p<.01, t tests for unpaired data comparing the Group practicing yoga with the Group not practicing yoga.

Note: Cohen's d is an appropriate effect size for the comparison between two means (Reference: https://en.wikiversity.org/wiki/Cohen%27s_d). It can be calculated using the formula mentioned below.

Cohen's d = Mean difference / SD_{pooled} where SD_{pooled} = $\sqrt{(SD_1^2 + SD_2^2) / 2}$

of the group who were practicing yoga were compared with those who were not practicing yoga. Apart from these findings, this follow-up study also indicates that 50 percent of the students were motivated to practice yoga in their own time when unsupervised. None of them reported any adverse outcomes or adverse events related to yoga practice.

Discussion

Parent-related self-esteem refers to children's perceptions of their status at home, involving subjective perceptions of how their parents view them (8). Preadolescent self-esteem is closely related to family interactions and family support (9). The yoga group showed an improvement in parental and total self-esteem after 13 months of unsupervised home

practice of yoga when the data of the group who were practicing yoga were compared with those who were not practicing yoga. This could be related to the fact that yoga practice increases emotional resilience (10).

In the prequel of this study a significant increase was found after yoga in total, general and parental self-esteem in a within group comparison when compared to before yoga (6). Yoga practice was supervised in a school setting (6). In the present report out of these three variables, in two subscales, that is total, and parental self-esteem there was a significant increase even when yoga was practiced at home and unsupervised. This suggests that the regular practice of yoga was also found beneficial to improve self-esteem when the practice was unsupervised. This is not to say that unsupervised practice is recommended; following the present observation the children were told they could contact the yoga center for guidance. Yoga can be practiced on ones own after practicing for sometime under expert supervision. However, in this case of pre adolescent children there was considered to be a risk if they practiced unsupervised. This study demonstrated that yoga is beneficial to measure pre-teen self-esteem and the present study could help in designing yoga programs for school children.

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