

Title of the project:

Effect of Yoga on Menstrual Problems in Adolescent Children

Implementing institution:

Patanjali Yoga Research Centre, Kozhikode, Kerala, India

Project Coordinator:

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Introduction

Adolescence among girls is a stage of transformation from childhood to womanhood. Many physical, mental and emotional changes happen during this period. During this stage, most often, they are not properly guided, advised or counseled. The parents themselves are not equipped for counseling. Most of them cannot afford to go to a doctor or counselor due to financial reasons or because this is not the practice in the society they live in. Further, in general, the subject is not openly and freely discussed about.

In this context, Patanjali Yoga Research Centre, Kozhikode, Kerala, India under the leadership of its Director, Acharya Unniraman carried out a project to study the effect of yoga on menstrual problems in adolescent children among the students of Vocational Higher Secondary School for Girls, Nadakkavu, Kozhikode, Kerala, India with the co-operation of its Principal, teachers, and their higher authorities, viz., the District Education Officer etc. Consent was obtained for the study from the students and their guardians. An Ethics Committee was formed including eminent persons, social workers, doctors, legal advisors, medical experts, professors, etc.

The objectives of the project were to give awareness to the students about various aspects related to the adolescence stage, clarify their doubts/identify their problems, to give them regular yoga practice which will help them relieve their mental stress and reduce physical discomfort during menstrual periods, and to study and record whether practice of Yoga has served the above purpose.

Methodology

The sample of students in the Yoga group (experimental group) and control group were in the age group of 16 to 17 years. Most of them come from poor and lower middle class families. The experimental group of 142 students was drawn from Government Vocational Higher Secondary School, Nadakkavu, while the control group was drawn from the nearby school, viz. Government Higher Secondary School, Nadakkavu. Both the schools are in Calicut (Kozhikode) city in the state of Kerala, India. The control group had 56 students, who were not given yoga classes.

Yoga classes for the students in the experimental group commenced in November/December 2010 and continued up to January/February 2011 in the school. Data was collected on various effects of yoga related to adolescence (menstrual periods) the interview schedule prepared for the purpose (Shown in Annexure I). The schedule contained details related to the socio economic profile of the students, knowledge on menstrual aspects and problems related to menstrual periods. Before giving yoga exercises, survey was carried out among the experimental group using the interview schedule. This is the pretest. This was followed by yoga classes to them three times a week for three months. After this, they were again interviewed using the schedule, which is the post test. The control group was also subject to pre and post tests using the interview schedule adopted for the experimental group at the same time as students of the experimental group. List of Asanas given to the experimental group Yoga students is given in Annexure II. Data collected on the problems related to menstrual periods has been presented in this report in the form of frequency tables. All the tables depict the pre and posttest survey data of the yoga experimental group and the control group.

Results and Discussion

Table 1 shows the duration of menstrual cycle of the students. It can be made out that after giving yoga (posttest stage), the interval of menstrual cycle of 59.2% of the students in the experimental group has become once in 28 days (which is the usual interval observed in a healthy person), while before doing yoga, only 29.6% of the students in the experimental group were having the interval of 28 days.

However, as far as the control group is concerned, 23.2% of the students had this interval of menstrual cycle during pretest, which has further reduced to 21.4% in the post test stage.

This finding indicates the beneficial effect of yoga in maintaining proper menstrual cycle in children under this study.

Table1. Duration of menstrual cycle of the students

| Duration | Yoga experimental group | | | | Control group | | | |
|--------------|-------------------------|------------|------------------------|------------|------------------------|------------|------------------------|------------|
| | Pre- test ^a | | Post test ^b | | Pre- test ^c | | Post test ^d | |
| | Respondents | | Respondents | | Respondents | | Respondents | |
| | no | % | no | % | no | % | no | % |
| 25- 30 days | 32 | 22.5 | 20 | 14.1 | 24 | 42.9 | 26 | 46.5 |
| 28 days | 42 | 29.6 | 84 | 59.2 | 13 | 23.2 | 12 | 21.4 |
| 30 days | 21 | 14.8 | 21 | 14.8 | 7 | 12.5 | 12 | 21.4 |
| > 30 days | 20 | 14.1 | 6 | 4.2 | 8 | 14.3 | 4 | 7.1 |
| No response | 27 | 19 | 11 | 7.7 | 4 | 7.1 | 2 | 3.6 |
| Total | 142 | 100 | 142 | 100 | 56 | 100 | 56 | 100 |

a- Conducted before giving yoga class to the students

b- Conducted after giving 3 months of yoga class to the students

c- Conducted during the pre-test done for yoga experimental group students

d- Conducted during the post-test done for yoga experimental group students

Data presented in Table 2 does not show any perceptible influence of yoga on the no. of days of bleeding for the students in the experimental group, in comparison with the control group. It may be noted from the table that, by and large, the trend of increase or decrease in the proportion of students reporting different days of bleeding is not very much different between the experimental and control groups.

Table 2. Days of bleeding during periods

| Days | Yoga experimental group | | | | Control group | | | |
|--------------|-------------------------|------------|------------------------|------------|------------------------|------------|------------------------|------------|
| | Pre- test ^a | | Post test ^b | | Pre- test ^c | | Post test ^d | |
| | Respondents | | Respondents | | Respondents | | Respondents | |
| | no | % | no | % | no | % | no | % |
| 3 - 5 days | 94 | 66.2 | 115 | 81 | 27 | 48.2 | 35 | 62.4 |
| 6 - 8 days | 37 | 26.1 | 25 | 17.6 | 25 | 44.6 | 20 | 35.8 |
| 9 - 12 days | 5 | 3.5 | 1 | 0.7 | 3 | 5.4 | 1 | 1.8 |
| 13 - 15 days | 1 | 0.7 | 0 | 0 | 1 | 1.8 | 0 | 0 |
| No response | 5 | 3.5 | 1 | 0.7 | 0 | 0 | 0 | 0 |
| Total | 142 | 100 | 142 | 100 | 56 | 100 | 56 | 100 |

Table 3 shows that there is an increase of 3.5% students using 3 pads in the post test stage (29.6 % increases to 33.1%), compared to pretest stage for the yoga group. However, this increase is only 1.8% in the case of the control group for the 3 pads category. However, the proportion of students using 4 pads per day increases in the post test stage for yoga group, when compared to the pre test stage for the group , while it decreases from 17.8% in the pretest stage to 10.7 % in the post test stage for the control group.

Hence, no perceptible influence of yoga can be inferred from the data on the no. of pads used by the experimental group.

Table 3. Use of pads during menstruation

| no. of pads used per day | Yoga experimental group | | | | Control group | | | |
|--------------------------|-------------------------|------------|-------------|------------|---------------|------------|-------------|------------|
| | Pre- test | | Post- test | | Pre- test | | Post test | |
| | Respondents | | Respondents | | Respondents | | Respondents | |
| | no | % | no | % | no | % | no | % |
| 2 | 82 | 57.8 | 73 | 51.4 | 29 | 51.8 | 32 | 57.1 |
| 3 | 42 | 29.6 | 47 | 33.1 | 16 | 28.6 | 17 | 30.4 |
| 4 | 9 | 6.3 | 16 | 11.3 | 10 | 17.8 | 6 | 10.7 |
| >4 | 7 | 4.9 | 5 | 3.5 | 1 | 1.8 | 0 | 0 |
| No response | 2 | 1.4 | 1 | 0.7 | 0 | 0 | 1 | 1.8 |
| Total | 142 | 100 | 142 | 100 | 56 | 100 | 56 | 100 |

It may be inferred from Table 4 that the proportion of experimental group students reporting regularity of menstrual cycle increases by 16.2% from 55.6 % to 71.8% (pretest to post test stage). But, this increase is only 10.7 % (76.8 % in pretest to 87.5% in posttest stage) in the case of control group. However, as mentioned in the previous sentence, since the control group is also showing an increase in the no. of students reporting, the inference that may be drawn is that yoga might have probably influenced the regularity of menstrual cycle in the students under study.

Table 4. Regularity of menstrual cycle

| Menstrual cycle is regular | Yoga experimental group | | | | Control group | | | |
|----------------------------|-------------------------|------------|-------------|------------|---------------|------------|-------------|------------|
| | Pre- test | | Post- test | | Pre test | | Post test | |
| | Respondents | | Respondents | | Respondents | | Respondents | |
| | no | % | no | % | no | % | no | % |
| Yes | 79 | 55.6 | 102 | 71.8 | 43 | 76.8 | 49 | 87.5 |
| No | 61 | 43 | 40 | 28.2 | 13 | 23.2 | 7 | 12.5 |
| No response | 2 | 1.4 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 142 | 100 | 142 | 100 | 56 | 100 | 56 | 100 |

Table 5 gives details of absence from schools reported by the students. The data shows that due to practice of yoga, 94.4% students do not absent themselves from

school due to menstrual problems, when compared to 83.1% reporting absence from school before practicing yoga (pretest). However, in the case of the control group, this difference in percentage of students is comparatively less (87.5 % students in pretest stage increases to only 89.3% in the post test stage).

Hence, yoga has helped the students to prevent abstaining from classes due to menstrual problems.

Table 5. Absence from school during periods

| Absent | Yoga experimental group | | | | Control group | | | |
|--------------|-------------------------|------------|-------------|------------|---------------|------------|-------------|------------|
| | Pre- test | | Post- test | | Pre- test | | Post test | |
| | Respondents | | Respondents | | Respondents | | Respondents | |
| | no | % | no | % | no | % | no | % |
| Yes | 22 | 15.5 | 8 | 5.6 | 7 | 12.5 | 6 | 10.7 |
| No | 118 | 83.1 | 134 | 94.4 | 49 | 87.5 | 50 | 89.3 |
| No response | 2 | 1.4 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 142 | 100 | 142 | 100 | 56 | 100 | 56 | 100 |

It can be inferred from the data presented in Table 6 that, with respect to the following two problems, namely, irregular menstrual cycle with more bleeding, and continuous severe bleeding, yoga has been able to reduce the number of students reporting these problems. However, in the control group, the percentage of students reporting these problems have either remained the same or increased in the post test stage, when compared to the pretest stage. Similarly, due to practice of yoga, more number of students is reporting the condition of less bleeding, while the number of students in the control group reporting less bleeding in the post test stage is reducing, when compared to the pretest stage.

Hence, the results testify the influence of yoga in reducing menstruation related bleeding problems in children.

Table 6. Bleeding problems during menstruation

| Details | Yoga experimental group | | | | Control group | | | |
|--|-------------------------|------------|-------------|------------|---------------|------------|-------------|------------|
| | Pre- test | | Post- test | | Pre- test | | Post test | |
| | Respondents | | Respondents | | Respondents | | Respondents | |
| | no | % | no | % | no | % | no | % |
| Regular menstrual cycle with more bleeding | 6 | 4.2 | 8 | 5.6 | 1 | 1.8 | 2 | 3.6 |
| Irregular menstrual cycle with more bleeding | 27 | 19 | 13 | 9.2 | 6 | 10.7 | 6 | 10.7 |
| Continuous severe bleeding | 1 | 0.7 | 0 | 0 | 0 | 0 | 1 | 1.8 |
| Less Bleeding | 29 | 20.4 | 41 | 28.9 | 12 | 21.4 | 7 | 12.5 |
| No. bleeding problem | 66 | 46.5 | 77 | 54.2 | 27 | 48.2 | 39 | 69.6 |
| No response | 13 | 9.2 | 3 | 2.1 | 10 | 17.9 | 1 | 1.8 |
| Total | 142 | 100 | 142 | 100 | 56 | 100 | 56 | 100 |

No perceptible influence of yoga on the problem of abdominal pain two weeks before periods is evident from the results given in Table 7.

Table 7. Abdominal pain two weeks before periods

| Abdominal pain | Yoga experimental group | | | | Control group | | | |
|----------------|-------------------------|------------|-------------|------------|---------------|------------|-------------|------------|
| | Pre- test | | Post- test | | Pre- test | | Post test | |
| | Respondents | | Respondents | | Respondents | | Respondents | |
| | no | % | no | % | no | % | no | % |
| Yes | 26 | 18.3 | 28 | 19.7 | 4 | 7.1 | 7 | 12.5 |
| No | 113 | 79.6 | 113 | 79.6 | 49 | 87.5 | 48 | 85.7 |
| No response | 3 | 2.1 | 1 | 0.7 | 3 | 5.4 | 1 | 1.8 |
| Total | 142 | 100 | 142 | 100 | 56 | 100 | 56 | 100 |

However, yoga is found to have a positive effect in reducing muscle cramps in the children during periods. This is highlighted from the data presented in Table 8, which shows that after practicing yoga, about 60% students are reporting no muscle cramps, when compared to about 51% students reporting the same during the pretest stage in the experimental group. But, the percentage of farmers reporting no muscle cramps in the pretest stage (55.4%) reduces to 53.6% in the post test stage in the case of the control group.

Table 8. Muscle cramps during periods

| Muscle cramps | Yoga experimental group | | | | Control group | | | |
|---------------|-------------------------|------------|-------------|------------|---------------|------------|-------------|------------|
| | Pre- test | | Post- test | | Pre- test | | Post test | |
| | Respondents | | Respondents | | Respondents | | Respondents | |
| | no | % | no | % | no | % | no | % |
| Yes | 65 | 45.8 | 55 | 38.7 | 19 | 33.9 | 25 | 44.6 |
| No | 73 | 51.4 | 85 | 59.9 | 31 | 55.4 | 30 | 53.6 |
| No response | 4 | 2.8 | 2 | 1.4 | 6 | 10.7 | 1 | 1.8 |
| Total | 142 | 100 | 142 | 100 | 56 | 100 | 56 | 100 |

The effect of yoga on abdominal pain during periods cannot be established from the data presented in Table 9.

Table 9. Abdominal pain during periods

| Abdominal pain | Yoga experimental group | | | | Control group | | | |
|----------------|-------------------------|------------|-------------|------------|---------------|------------|-------------|------------|
| | Pre- test | | Post- test | | Pre- test | | Post- test | |
| | Respondents | | Respondents | | Respondents | | Respondents | |
| | no. | % | no. | % | no. | % | no. | % |
| Yes | 107 | 75.4 | 93 | 65.5 | 41 | 73.2 | 35 | 62.5 |
| No | 32 | 22.5 | 47 | 33.1 | 14 | 25 | 20 | 35.7 |
| No response | 3 | 2.1 | 2 | 1.4 | 1 | 1.8 | 1 | 1.8 |
| Total | 142 | 100 | 142 | 100 | 56 | 100 | 56 | 100 |

But, yoga is found to have an influence on the no. of days of abdominal pain observed in the children. This is evident from the analysis of data in Table 10, which reveals that the number of students having pain for two and three days actually reduces in the post yoga period, compared to before doing yoga. The table also shows that more students (52.8%) report lesser period (one day only) pain after doing yoga, when compared to 46.5% students reporting one day pain before doing yoga (pretest of the experimental group). However, in the control group, the proportion of students reporting pain for three days remains more or less the same in the pre and posttest stages (7.1% and 7.2% respectively), while the proportion, who mention 2 days pain actually increases from 26.8% in the pretest to 32.1% during the posttest stage (Table 10). Further, in the control group, the number of students reporting one day pain is decreasing from 44.6% in the pretest stage to 41.1% in the post test stage.

Table 10. No. of days of abdominal pain during periods

| No. of days of abdominal pain | Yoga experimental group | | | | Control group | | | |
|-------------------------------|-------------------------|------------|-------------|------------|---------------|------------|-------------|------------|
| | Pre- test | | Post test | | Pre- test | | Post- test | |
| | Respondents | | Respondents | | Respondents | | Respondents | |
| | no | % | no | % | no | % | no | % |
| 1 | 66 | 46.5 | 75 | 52.8 | 25 | 44.6 | 23 | 41.1 |
| 2 | 45 | 31.7 | 32 | 22.5 | 15 | 26.8 | 18 | 32.1 |
| 3 | 16 | 11.3 | 11 | 7.8 | 4 | 7.1 | 4 | 7.2 |
| All days | 2 | 1.4 | 1 | 0.7 | 1 | 1.8 | 0 | 0 |
| No response | 13 | 9.1 | 23 | 16.2 | 11 | 19.7 | 11 | 19.6 |
| Total | 142 | 100 | 142 | 100 | 56 | 100 | 56 | 100 |

From the data seen in Table 11, it can be inferred that only 36.6% students report leg/back pain after doing yoga, compared to 47.9% students reporting it in the pre yoga stage (pretest stage). But, the proportion of control group students reporting

leg/back pain remains more or less the same during pre and posttest stages (51.8 and 50% respectively). Further the increase in percentage of students reporting no such pain from the pre to posttest stages is higher in the case of the yoga experimental group of students, when compared to the increase seen in the case of the control group of students.

Hence, the effect of doing yoga on reducing the leg/back pain of students during periods is evident from this study

Table 11. Leg/back pain during periods

| Leg/back pain | Yoga experimental group | | | | Control group | | | |
|---------------|-------------------------|------------|-------------|------------|---------------|------------|-------------|------------|
| | Pre- test | | Post test | | Pre- test | | Post test | |
| | Respondents | | Respondents | | Respondents | | Respondents | |
| | no | % | no | % | no | % | no | % |
| Yes | 68 | 47.9 | 52 | 36.6 | 29 | 51.8 | 28 | 50 |
| No | 70 | 49.3 | 84 | 59.2 | 24 | 42.9 | 26 | 46.4 |
| No response | 4 | 2.8 | 6 | 4.2 | 3 | 5.3 | 2 | 3.6 |
| Total | 142 | 100 | 142 | 100 | 56 | 100 | 56 | 100 |

The effect of yoga in controlling nausea among children can be inferred from the data in Table 12. While only 14.8% students in the yoga experimental group report nausea in the post test stage, the figure during the pretest stage for this group of students is 18.3%. However, in the control group, the number of students reporting nausea is actually increasing in the post test phase, as compared to the pretest stage.

Table 12. Nausea during periods

| Nausea | Yoga experimental group | | Control group | |
|--------|-------------------------|-------------|---------------|-------------|
| | Pre- test | Post test | Pre- test | Post test |
| | Respondents | Respondents | Respondents | Respondents |

| | no | % | no | % | no | % | no | % |
|--------------|------------|------------|------------|------------|-----------|------------|-----------|------------|
| Yes | 26 | 18.3 | 21 | 14.8 | 14 | 25 | 15 | 26.8 |
| No | 107 | 75.4 | 119 | 83.8 | 38 | 67.9 | 41 | 73.2 |
| No response | 9 | 6.3 | 2 | 1.4 | 4 | 7.1 | 0 | 0 |
| Total | 142 | 100 | 142 | 100 | 56 | 100 | 56 | 100 |

From the data presented in Table 13, it is not possible to arrive at a definite conclusion on the influence of yoga in reducing vomiting among the students.

Table 13. Vomiting during periods

| Vomiting | Yoga experimental group | | | | Control group | | | |
|--------------|-------------------------|------------|-------------|------------|---------------|------------|-------------|------------|
| | Pre- test | | Post- test | | Pre- test | | Post test | |
| | Respondents | | Respondents | | Respondents | | Respondents | |
| | no | % | no | % | no | % | no | % |
| Yes | 17 | 12 | 12 | 8.5 | 8 | 14.3 | 5 | 8.9 |
| No | 122 | 86 | 129 | 90.8 | 46 | 82.1 | 50 | 89.3 |
| No response | 3 | 2 | 1 | 0.7 | 2 | 3.6 | 1 | 1.8 |
| Total | 142 | 100 | 142 | 100 | 56 | 100 | 56 | 100 |

Yoga is found to have a profound positive influence on anxiety reduction of students.

Table 14 reveals that after doing yoga, about 83% of the students are free from anxiety problem occurring before menstruation, while the only 72% students report freedom from anxiety before they were exposed to yoga exercises. The effect of yoga in reducing tension and anxiety among people is already well established. This is reportedly due to secretion of more endorphin hormones, especially, beta endorphin, which results in happiness in individuals.

Table 14. Anxiety before menstruation

| | Yoga experimental group | Control group |
|--|-------------------------|---------------|
|--|-------------------------|---------------|

| Anxiety | Pre- test | | Post test | | Pre- test | | Post test | |
|--------------|-------------|------------|-------------|------------|-------------|------------|-------------|------------|
| | Respondents | | Respondents | | Respondents | | Respondents | |
| | no | % | no | % | no | % | no | % |
| Yes | 30 | 21.1 | 23 | 16.2 | 12 | 21.4 | 13 | 23.2 |
| No | 103 | 72.5 | 118 | 83.1 | 44 | 78.6 | 43 | 76.8 |
| No response | 9 | 6.4 | 1 | 0.7 | 0 | 0 | 0 | 0 |
| Total | 142 | 100 | 142 | 100 | 56 | 100 | 56 | 100 |

The results presented in Table 15 highlights that as in the case of anxiety, yoga is helping the experimental group students in reducing anger. This is because 81% of these students who have done yoga mention that they do not get angry, when compared to 70.4% students who had mentioned the same during the pretest stage. It should also be noted that in the control group, there is an increase in only 1.9% students in the post test stage, who report that they are not getting angry compared to the students in this group who give the same response during the pretest stage (66 % becomes 67.9% students).

Table 15. Anger without any cause

| Gets angry without any cause | Yoga experimental group | | | | Control group | | | |
|------------------------------|-------------------------|------------|-------------|------------|---------------|------------|-------------|------------|
| | Pre- test | | Post test | | Pre- test | | Post test | |
| | Respondents | | Respondents | | Respondents | | Respondents | |
| | no | % | no | % | no | % | no | % |
| Yes | 39 | 27.5 | 26 | 18.3 | 17 | 30.4 | 18 | 32.1 |
| No | 100 | 70.4 | 115 | 81 | 37 | 66 | 38 | 67.9 |
| No response | 3 | 2.1 | 1 | 0.7 | 2 | 3.6 | 0 | 0 |
| Total | 142 | 100 | 142 | 100 | 56 | 100 | 56 | 100 |

Even though no perceptible influence of yoga in reducing head ache is evident from the data presented in Table 16, it can still be made out from the table that while the percentage of students reporting head ache in the control group increases in

the post test phase, when compared to the pretest phase, the proportion of students reporting head ache after doing yoga is actually decreasing to 16. 2% compared to 17.6% of the yoga group students reporting the problem during the pretest stage.

Table 16. Headache during menstruation

| Head ache | Yoga experimental group | | | | Control group | | | |
|--------------|-------------------------|------------|-------------|------------|---------------|------------|-------------|------------|
| | Pre- test | | Post test | | Pre- test | | Post test | |
| | Respondents | | Respondents | | Respondents | | Respondents | |
| | no | % | no | % | no | % | no | % |
| Yes | 25 | 17.6 | 23 | 16.2 | 7 | 12.5 | 12 | 21.4 |
| No | 114 | 80.3 | 115 | 81.0 | 47 | 83.9 | 44 | 78.6 |
| No response | 3 | 2.1 | 4 | 2.8 | 2 | 3.6 | 0 | 0 |
| Total | 142 | 100 | 142 | 100 | 56 | 100 | 56 | 100 |

Similar to head ache, the number of students reporting no fatigue during menstruation is increasing during the post yoga (posttest) phase than the students who report fatigue during the pretest stage in the experimental group (Table 17). However, the number of students having fatigue problem is remaining more or less the same during pre and posttest phases in the control group (51. 8% and 50 % respectively).

Once again, this finding reinforces the medical effect of yoga in terms of reducing fatigue among children during menstruation periods.

Table 17. Fatigue during menstruation

| Fatigue | Yoga experimental group | | | | Control group | | | |
|---------|-------------------------|------|-------------|------|---------------|------|-------------|----|
| | Pre- test | | Post test | | Pre- test | | Post test | |
| | Respondents | | Respondents | | Respondents | | Respondents | |
| | no | % | no | % | no | % | no | % |
| Yes | 63 | 44.4 | 46 | 32.4 | 24 | 42.9 | 28 | 50 |

| | | | | | | | | |
|--------------|------------|------------|------------|------------|-----------|------------|-----------|------------|
| No | 73 | 51.4 | 95 | 66.9 | 29 | 51.8 | 28 | 50 |
| No response | 6 | 4.2 | 1 | 0.7 | 3 | 5.3 | 0 | 0 |
| Total | 142 | 100 | 142 | 100 | 56 | 100 | 56 | 100 |

The effect of yoga in reducing breast pain before menstruation is evident from the data presented in Table 18. About 90% of the experimental group students have no breast pain before menstruation after exposed to yoga exercises, while the figure is 88.7% students before they did yoga. But, this trend is not seen in the case of the control group, since the percentage of students who have no breast pain is actually decreasing in the post test stage, when compared to the pretest stage in this group (Table 18).

Table 18. Breast pain before menstruation

| Breast pain | Yoga experimental group | | | | Control group | | | |
|--------------|-------------------------|------------|-------------|------------|---------------|------------|-------------|------------|
| | Pre- test | | Post test | | Pre- test | | Post test | |
| | Respondents | | Respondents | | Respondents | | Respondents | |
| | no | % | no | % | no | % | no | % |
| Yes | 13 | 9.2 | 13 | 9.2 | 5 | 8.9 | 8 | 14.3 |
| No | 126 | 88.7 | 128 | 90.1 | 50 | 89.3 | 48 | 85.7 |
| No response | 3 | 2.1 | 1 | 0.7 | 1 | 1.8 | 0 | 0 |
| Total | 142 | 100 | 142 | 100 | 56 | 100 | 56 | 100 |

Yoga also helps the students to prevent diarrhea during periods. This is confirmed from the data in Table 19, which shows that about the proportion of students, who do not have diarrhea problem increases from about 90% in the pretest stage to about 95% in the post test stage in the yoga experimental group, while in the case of the control group, the number of students is decreasing in the post test stage.

Table 19. Diarrhea during periods

| Diarrhea | Yoga experimental group | | | | Control group | | | |
|--------------|-------------------------|------------|-------------|------------|---------------|------------|-------------|------------|
| | Pre- test | | Post test | | Pre- test | | Post test | |
| | Respondents | | Respondents | | Respondents | | Respondents | |
| | no | % | no | % | no | % | no | % |
| Yes | 11 | 7.8 | 6 | 4.2 | 2 | 3.6 | 2 | 3.6 |
| No | 128 | 90.1 | 135 | 95.1 | 54 | 96.4 | 53 | 94.6 |
| No response | 3 | 2.1 | 1 | 0.7 | 0 | 0 | 1 | 1.8 |
| Total | 142 | 100 | 142 | 100 | 56 | 100 | 56 | 100 |

Significant effect of yoga on constipation cannot be established from the results presented in Table 20.

Table 20. Constipation during periods

| Constipation | Yoga experimental group | | | | Control group | | | |
|--------------|-------------------------|------------|-------------|------------|---------------|------------|-------------|------------|
| | Pre- test | | Post test | | Pre- test | | Post test | |
| | Respondents | | Respondents | | Respondents | | Respondents | |
| | no | % | no | % | no | % | no | % |
| Yes | 6 | 4.2 | 7 | 4.9 | 4 | 7.1 | 2 | 3.6 |
| No | 129 | 90.8 | 133 | 93.7 | 48 | 85.7 | 53 | 94.6 |
| No response | 7 | 5 | 2 | 1.4 | 4 | 7.2 | 1 | 1.8 |
| Total | 142 | 100 | 142 | 100 | 56 | 100 | 56 | 100 |

The effect of yoga in maintaining appetite of the students during period's time can be seen from Table 21. Compared to about 56% of students reporting no loss of appetite during periods before practicing yoga, the figure increases to about 70%

students after practicing yoga. But, in the case of the control group, the proportion of students remains the same during both the pretest and posttest stages (71.4%).

Table 21. Lack of appetite during periods

| Lack of appetite | Yoga experimental group | | | | Control group | | | |
|------------------|-------------------------|------------|-------------|------------|---------------|------------|-------------|------------|
| | Pre- test | | Post test | | Pre- test | | Post test | |
| | Respondents | | Respondents | | Respondents | | Respondents | |
| | no | % | no | % | no | % | no | % |
| Yes | 58 | 40.9 | 41 | 28.9 | 14 | 25 | 16 | 28.6 |
| No | 79 | 55.6 | 99 | 69.7 | 40 | 71.4 | 40 | 71.4 |
| No response | 5 | 3.5 | 2 | 1.4 | 2 | 3.6 | 0 | 0 |
| Total | 142 | 100 | 142 | 100 | 56 | 100 | 56 | 100 |

Similarly, yoga is found to have a great influence on reducing the loss of interest of the students during period's time. The data presented in Table 22 shows that almost double the number of students, who have done yoga (86) are of the opinion that they do not have the problem of losing interest during periods, when compared to the students giving the same response during the pre-yoga period (44 numbers). It may be noted from Table 22 that the increase in the number of students reporting the same from pre to post test in the case of the control group is only 2 (23 increases to 25 students). This small increase in the control group may be due to other reasons.

Table 22. Lack of interest during periods

| | Yoga experimental group | | Control group | |
|--|-------------------------|-----------|---------------|-----------|
| | Pre- test | Post test | Pre- test | Post test |
| | | | | |

| Lack of interest | Respondents | | Respondents | | Respondents | | Respondents | |
|------------------|-------------|------------|-------------|------------|-------------|------------|-------------|------------|
| | no | % | no | % | no | % | no | % |
| Yes | 95 | 66.9 | 55 | 38.7 | 31 | 55.4 | 31 | 55.4 |
| No | 44 | 31 | 86 | 60.6 | 23 | 41 | 25 | 44.6 |
| No response | 3 | 2.1 | 1 | 0.7 | 2 | 3.6 | 0 | 0 |
| Total | 142 | 100 | 142 | 100 | 56 | 100 | 56 | 100 |

Conclusions

The results of the study carried out among the students of Govt. VHSS, Nadakav, Kozhikode on the influence of yoga on adolescence problems of children leads us to the following conclusions.

Out of the 22 parameters related to menstrual problems, which were analyzed in this study, yoga is found to positively influence 14 parameters, while yoga probably influences one more parameter. The details are given below.

- a. Yoga has a beneficial effect in maintaining proper menstrual cycle in children
- b. Yoga has helped the students to prevent abstaining from classes due to menstrual problems.
- c. Yoga helps to reduce menstruation related bleeding problems in children.
- d. Yoga is found to have a positive effect in reducing muscle cramps in the children during periods.

- e. Yoga helps to reduce the no. of days of abdominal pain observed in children during periods.
- f. Practice of yoga results in less of leg/back pain of students during periods
- g. Yoga controls nausea among children during periods
- h. Yoga is found to have a profound positive influence on anxiety reduction of students.
- i. As in the case of anxiety, yoga is helping the experimental group students in reducing anger.
- j. The results of the study reinforce the medical effect of yoga in reducing fatigue among children during menstruation periods.
- k. The effect of yoga in controlling breast pain before menstruation is evident from the study
- l. Yoga also helps the students to prevent diarrhoea during periods.
- m. Practice of yoga helps the students to maintain appetite during the time of periods
- n. Yoga is found to have a great influence on reducing the loss of interest of the students during periods.
- o. Yoga might have probably influenced the regularity of menstrual cycle in the students under study.

ANNEXURE-1

**QUESTIONNAIRE TO ASSESS MENSTRUAL PROBLEMS AND ITS MANAGEMENT
AMONG ADOLESCENT GIRLS.**

(Instructions to the participants: Answer all questions. Put a tick mark against the response column. No right or wrong answers. Please return the questionnaire after completing.)

Name:

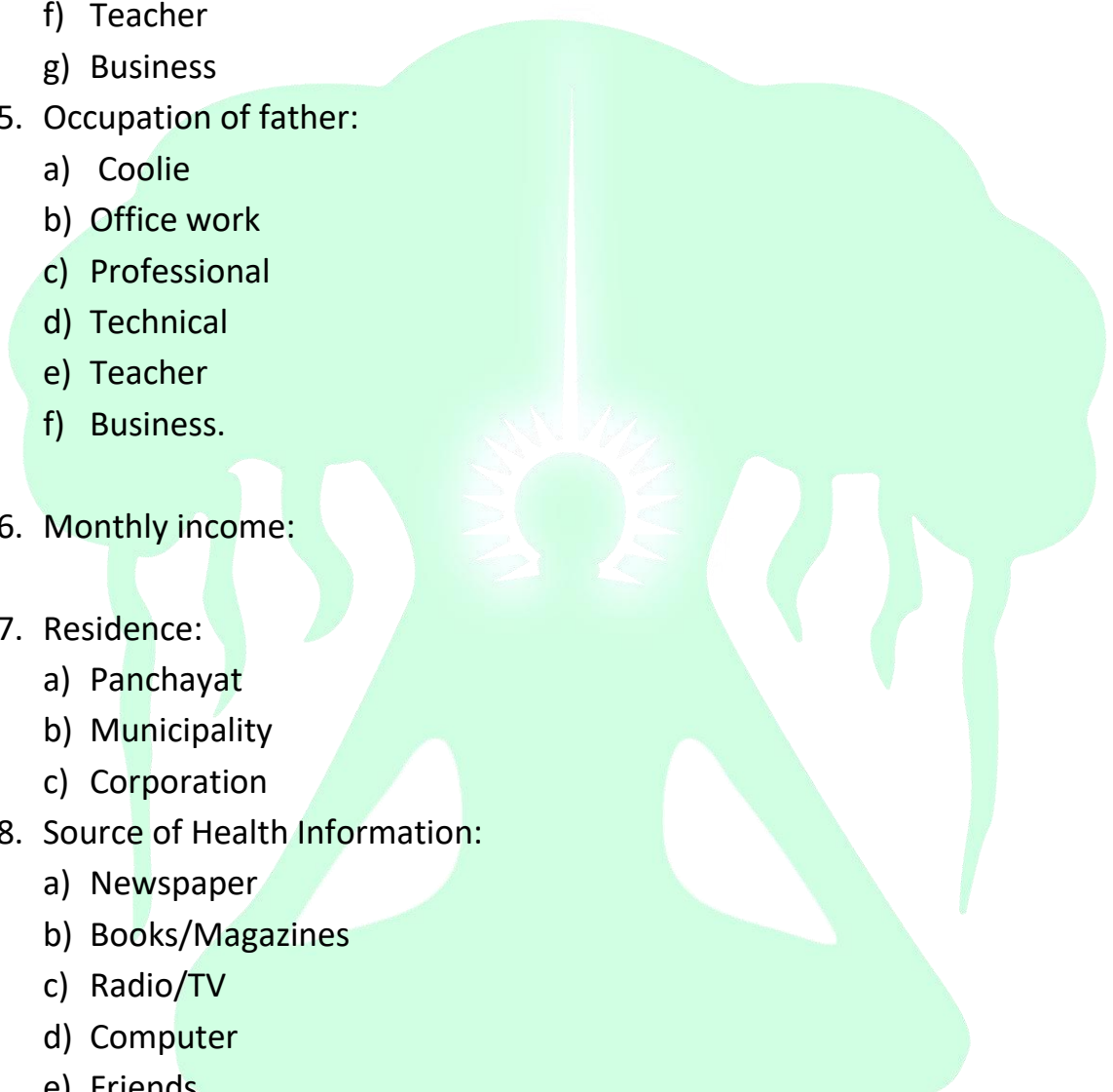
School:

Address:

Standard and Division:

SOCIO PERSONAL DATA:

1. Age :
2. Religion :
3. Education of mother :
 - a) Illiterate
 - b) Primary education
 - c) Secondary education
 - d) College education
 - e) Professional education
 - f) Technical education
4. Occupation of mother:

- 
- a) Housewife
 - b) Coolie
 - c) Office work
 - d) Professional
 - e) Technical
 - f) Teacher
 - g) Business
5. Occupation of father:
- a) Coolie
 - b) Office work
 - c) Professional
 - d) Technical
 - e) Teacher
 - f) Business.
6. Monthly income:
7. Residence:
- a) Panchayat
 - b) Municipality
 - c) Corporation
8. Source of Health Information:
- a) Newspaper
 - b) Books/Magazines
 - c) Radio/TV
 - d) Computer
 - e) Friends
 - f) Mother
 - g) Teacher
 - h) Health Awareness Programmes
 - i) Others
9. Age at menarche:

MENSTRUAL PROBLEMS

10. Duration of Menstrual Cycle:

- a) 25-30 days
- b) 28 days
- c) 30 days
- d) >30 days

11. How many days you have bleeding during periods?

- a) 3-5 days
- b) 6-8 days
- c) 9-12 days
- d) 13-15 days

12. How many pads you change per day during menstruation?

- a) 2
- b) 3
- c) 4
- d) More than 4

13. Do you have regular menstrual cycle?

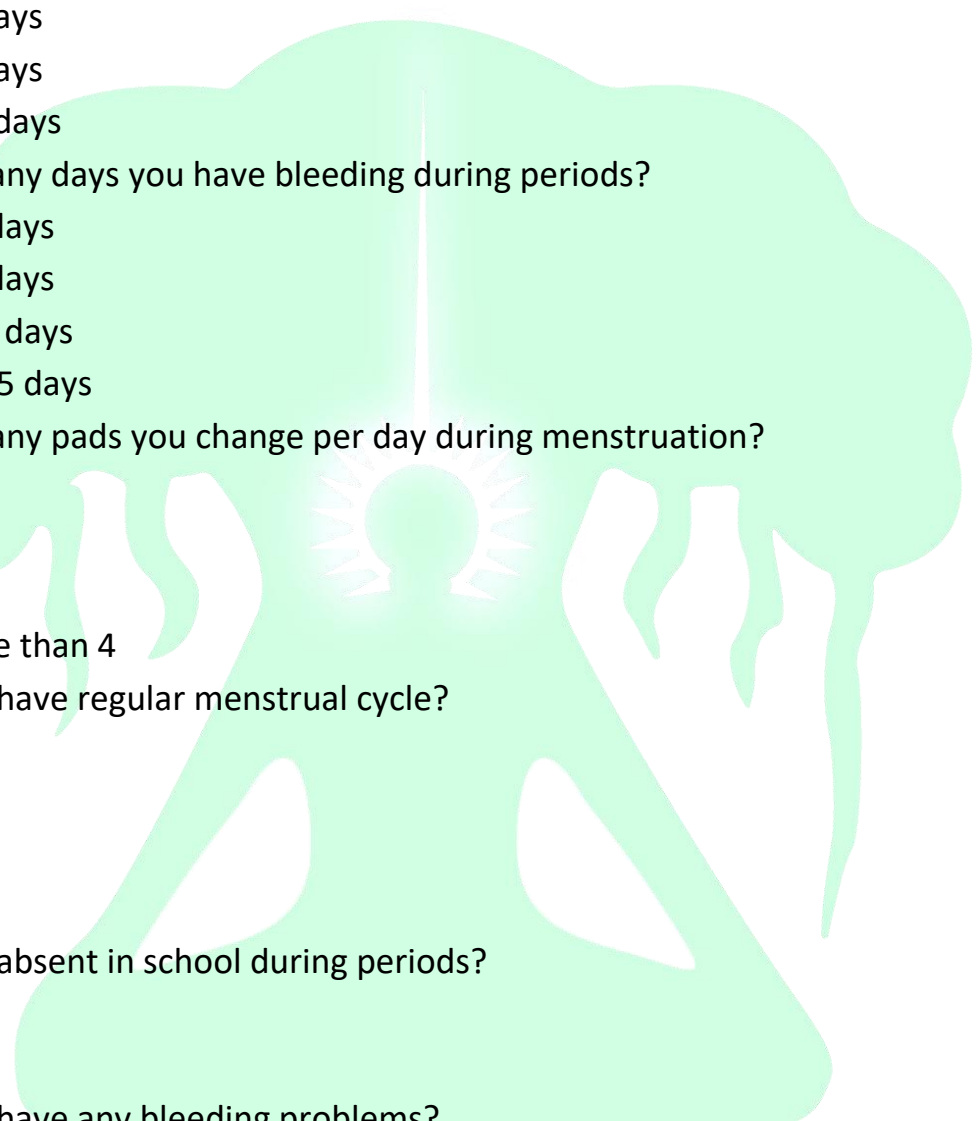
- a) Yes
- b) No

14. Do you absent in school during periods?

- a) Yes
- b) No

15. Do you have any bleeding problems?

- a) Regular menstrual cycle with more bleeding
- b) Irregular menstrual cycle with more bleeding
- c) Continuous severe bleeding
- d) Less bleeding
- e) No bleeding problem.



16. Do you have abdominal pain 2 weeks before periods?

- a) Yes
- b) No

17. Do you have muscle cramps during periods?

- a) Yes
- b) No

18. Do you have abdominal pain during periods?

- a) Yes
- b) No

19. During periods how many days you have abdominal pain?

- a) 1 day
- b) 2 days
- c) 3 days
- d) All days

20. Do you have leg/back pain?

- a) Yes
- b) No

21. Did you have nausea during periods?

- a) Yes
- b) No

22. Do you have vomiting during periods?

- a) Yes
- b) No

23. Do you have anxiety before menstruation?

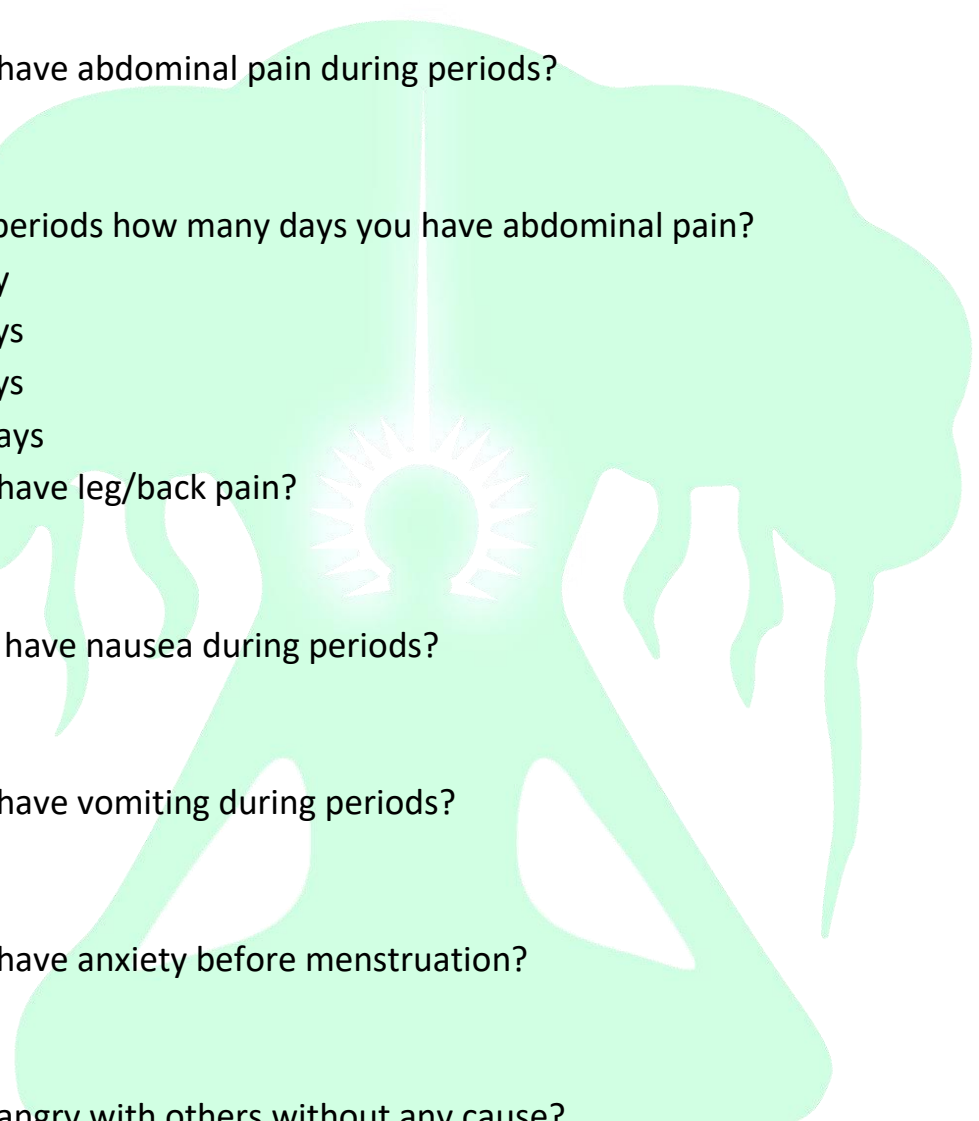
- a) Yes
- b) No

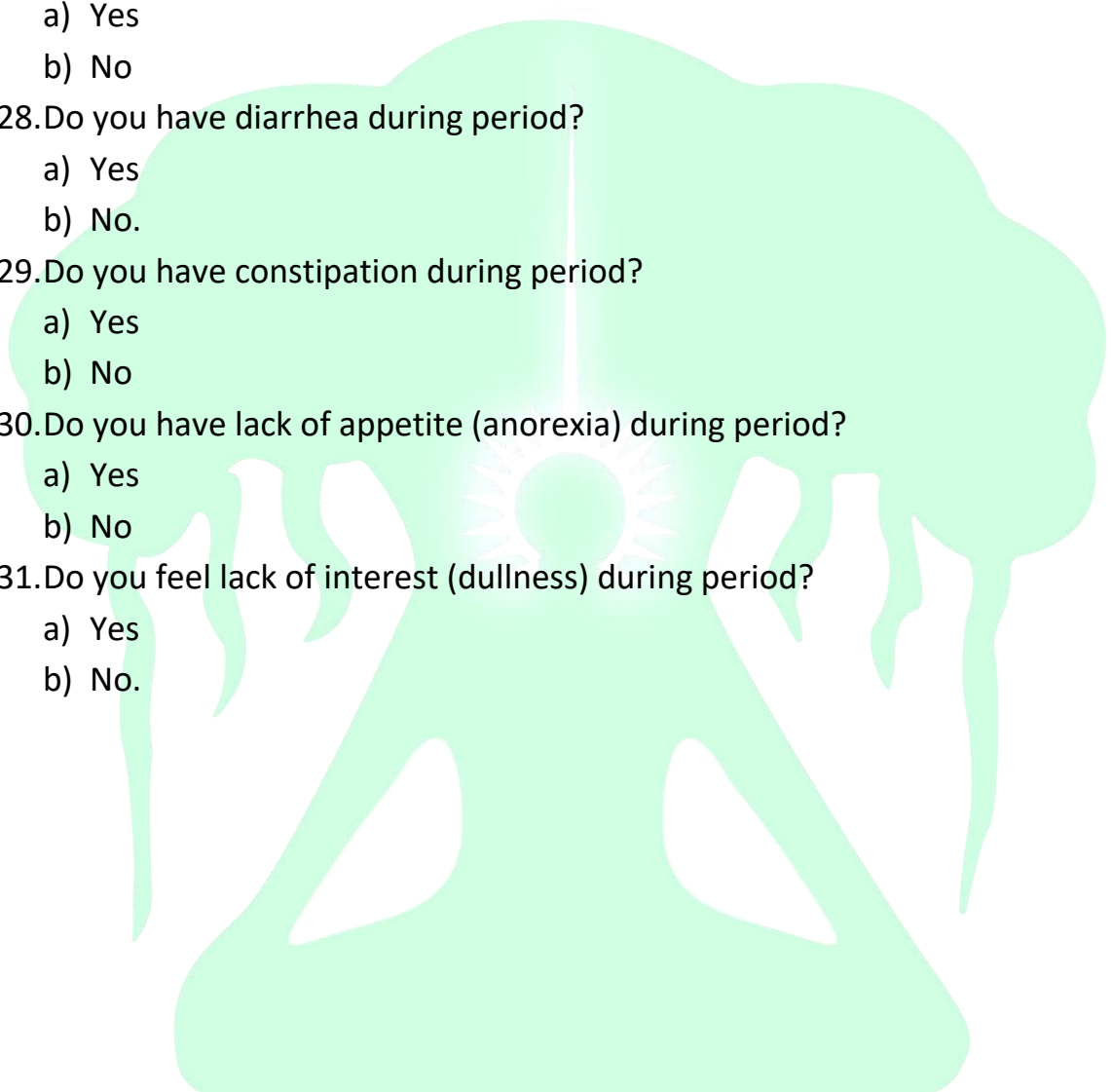
24. Do you angry with others without any cause?

- a) Yes
- b) No

25. Do you have head ache during menstruation?

- a) Yes
- b) No



- c)
26. Do you feel fatigue during menstruation?
- a) Yes
 - b) No
27. Do you have pain over breast before menstruation?
- a) Yes
 - b) No
28. Do you have diarrhea during period?
- a) Yes
 - b) No.
29. Do you have constipation during period?
- a) Yes
 - b) No
30. Do you have lack of appetite (anorexia) during period?
- a) Yes
 - b) No
31. Do you feel lack of interest (dullness) during period?
- a) Yes
 - b) No.
- 

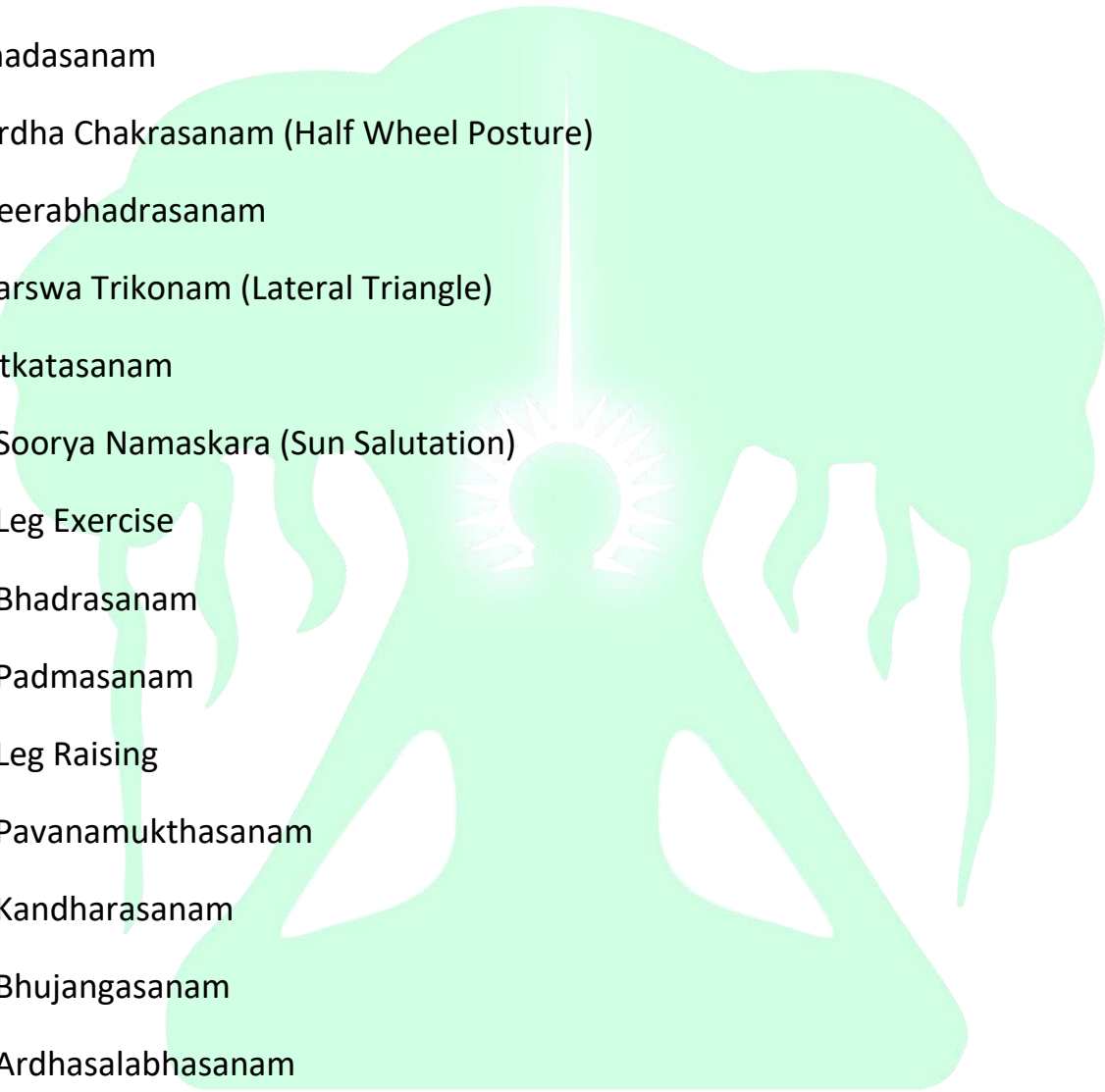
ANNEXURE – II.

**List of Asanas given to Yoga Group students at Government Vocational Higher
Secondary School for Girls Nadakav, Kozhikode**

Project Completion Report

Research Team Patanjali Yoga Center

1. Prayer
2. Breathing Exercise
3. Shoulder Rotation
4. Hip Rotation
5. Thadasanam
6. Ardha Chakrasanam (Half Wheel Posture)
7. Veerabhadrasanam
8. Parswa Trikonam (Lateral Triangle)
9. Utkatasanam
10. Soorya Namaskara (Sun Salutation)
11. Leg Exercise
12. Bhadrasanam
13. Padmasanam
14. Leg Raising
15. Pavanamukthasanam
16. Kandharasanam
17. Bhujangasanam
18. Ardhasalabhasanam
19. Anandasanam
20. Vyaghrasanam
21. Vakrasanam



22. Yoga Mudra

PRANAYAMA

23. Nadisuddhi

24. Bhastrika

25. Bhramari

26. Yoga Nidra

27. Meditation

28. Prayer.

