

Monitoring Aggression In Adolescents: Chandra Namaskara As A Panacea

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Abstract—Aggression in adolescence is a key point of focus for psychologists, educationists, parents, and teachers. On the other hand, interdisciplinary researches with special reference to yoga and psychology are growing rapidly in this era of applied science. Despite rapidly growing scientific literature on yoga and its application, there has been no study conducted to determine whether Chandra Namaskara (a yogic practice) affects the aggression level in adolescents. The current study aimed at exploring the effect of Chandra Namaskara on the aggression level of adolescents. A sample consisting of 40 intermediate and undergraduate students from Gayatri Vidyapeeth and Dev Sanskriti Vishwavidyalaya, Haridwar, Uttarakhand, respectively, was taken. The entire sample belonged to the age group of 15-20 years. Chandra Namaskara practice was given to each and every subject of the group for a period of 30 days regularly. In this research, pre-post single-group design has been applied. Participants were given a questionnaire named as "Aggression Scale" (A-scale) which was developed by Pal and Naqvi (1983) for measurement of aggression score. Paired sample t-test and eta-squared statistics have been used for comparing pre- and post-mean scores and computing the magnitude of the effect of intervention, respectively. There was a statistically significant decrease in the aggression score from pre-test ($M = 63.85, SD = 21.75$) to post-test ($M = 49.95, SD = 14.53$), $t(39) = 8.42, P < 0.01$ (two-tailed). The mean decrease in aggression score was 13.9 with a 99% confidence interval. The eta-squared statistics was 0.64, which indicates large effect of the intervention on aggression. The findings revealed that the practice of Chandra Namaskara is highly effective in reducing the aggression level in participants, which was significant at 0.01 level of significance.

Keywords: Adolescents, aggression, Chandra Namaskara, undergraduate students, Yogic practices

1. INTRODUCTION

We can see the odious behavior of aggression in all types of individuals; but today, it has become a significant clinical and social problem among adolescents. Adolescent aggression is an important point of focus for educators and parents, owing to its relative stability over time and consistent link to a variety of negative outcomes later in adolescence, including delinquency, substance use, conduct problems, poor adjustment, and academic difficulties like poor grades, suspension, expulsion, and dropping out of school (Sharma, 2012). Later, these signs of aggression lead to the symptoms

of many psychiatric disorders. These include Oppositional Defiant Disorder and Conduct Disorder, both of which have prevalence rates ranging from 6 to 10% in the general population and even higher among males, according to the American Psychiatric Association.

Aggression is defined as "a sequence of behavior, the goal response of which is the injury to the person toward whom it is directed" (Dollard, Doob, Miller, Mowrer, & Sears, 1939). In psychology, the term aggression refers to a range of behaviors that can result in both physical and psychological harm to oneself, others, or objects in the environment. The expression of aggression can occur in a number of ways, including verbally, mentally, and physically (Berkowitz, 1993).

For young children to overcome their aggressive behavior problem, they need positive, pleasant, and nourishing environment. Recently, a new term "Helicopter Parenting" has emerged for those parents who keep a watch on their children all the time and research suggests that this type of parenting style is not good for consistent and healthy child development. It leads to aggressive behavior because of frustration at childhood stage or during adolescence. So, it is the responsibility of parents and teachers to create positive surroundings and tackle their children intellectually and carefully.

Medical treatment has many side effects. Individuals get addicted to the medicines. There are more chances of relapse if one stops taking the medicine and is totally dependent on it (Sharma, 2012). One of the authors of this research report has experience in the field of mental health. Many patients complain about the side effects of psychiatric drugs and face difficulty of withdrawal. Ultimately, they have an urge to take alternative treatments like yoga, psychotherapy, etc.

There are many types of yogic practices like āsana, prāṇāyāma, mudrā etc. in yoga, which can reduce the psychological problem of any individual. Techniques like yoga, relaxation, and interpersonal counseling also seem to be highly influential in reducing aggression (Rana, 2007). Rao (1995) discusses the significance of yoga to the well-being of mankind. The core of yoga practice lies in concentration, yogic meditation, and absorption. Reports show that yogic practices are probably the most important and effective self-help tools available to humanity. Collins (1998) suggested that regular practice of yoga leads to overall physical and psychological well-being. According to Dr. Paul Jerard Chandra Namaskara, lunar flow, or the Moon Salutation, is a series of flowing Yoga poses

used to unwind and refocus. It often begins in Mountain pose, then flows through a series of lunges and other poses. Afterward, the order is reversed, for a symmetrical set of postures. Chandra Namaskar works to bring peace and calm to the body and mind. It is often practiced at the end of a Yoga session, or at the end of a busy day. It is said to be especially powerful, when performed in conjunction with the phases of the moon. There is a belief among some practitioners that performing Chandra Namaskar, under a full moon, will help draw from the energies of the moon, making the benefits of the sequence more powerful.

Breathing is also an important part of Chandra Namaskar. As you move throughout the postures, you are either inhaling or exhaling. This helps to stimulate blood flow throughout the body, which brings blood to the organs, the brain, and other body systems. Proper breathing helps lower stress levels, relaxes the body, and results in overall positive effects on the mind. As we move through our daily lives, we often forget about the importance and benefits of proper breathing, which is deep and slow. Chandra Namaskar helps bring that awareness of natural breath back, so we can begin to realize the benefits of an essential life element.

The lunar flow promotes a sense of mental, emotional, and physical balance. There are many different variations in the series, but some of the forms of Chandra Namaskar include Half Moon or Triangle pose, which offset the body's center of gravity, improving balance. It also promotes digestion, by opening up the chest cavity, expanding the lungs, and exposing the heart. Other poses, within the series, help tone the spine and improve the strength of the arm and shoulder muscles.

The purpose of a lunar flow is to quiet the mind as well. It encourages Yoga practitioners to draw the focus inward and release the mind of stress and anxiety. It cools the entire body down, for a relaxing end of a Yoga session or the day. It can aid in sleep maladies, such as insomnia. Chandra Namaskar seeks to honor the feminine side of the body, restoring balance to the mind and body. The benefits of Chandra Namaskar are many. It is a simple series of poses that most beginners can practice without too much difficulty. If there is any difficulty, a competent Yoga teacher should know how to assist, modify, and help any student to use the appropriate props, if they are required. Finally, Chandra Namaskar's positive effects will stay with students until their next Moon Salutation practice.

The present research was designed to study the effect of *Chandra Namaskar* practice on aggression in adolescents. In this scientific study, an attempt was made to reduce or manage the aggression level with the help of *Chandra Namaskar*. Many researchers have shown the positive effect of yogic practices on physical and mental well-being. But researches directly related to *Chandra Namaskar* and aggressions is not

found or have not been attempted in the scientific world, or perhaps did not catch the attention of the researchers.

Hypothesis: "*Chandra Namaskar* does not have significant effect on the aggression level among adolescents."

Method

Participants:- In the present study, the researcher used simple random sampling method to select participants from the population. A total of 40 intermediate and undergraduate students from Gayatri Vidyapeeth and Dev Sanskriti Vishwavidyalaya, Haridwar, Uttarakhand participated in the present research work. The age ranged between 15 and 20 years.

Design of the study:- In order to study the impact of intervention on aggression, "single-group pre-post design" was applied. Pre- and post-test measurements on aggression were correspondingly conducted before and after the intervention. The above-mentioned design is symbolized as *A Q1 X Q2*, where A means the experimental group, Q1 represents pre-test, X means the intervention program (*Chandra Namaskar* practice for 30 days), and Q2 represents post-test.

Assessment:- In this research work, the researcher used the aggression scale questionnaire for measuring the aggression level, which was developed by Pal and Naqvi (1983). The split-half reliability and test-retest reliability of the scale are 0.82 and 0.78, respectively. Content validity of the test is 0.78. This scale is applicable for the age group 14-24 years. It has 30 questions to which the participants responded. All the items of aggression scale are related to behaviors in everyday life. There is no complexity in items. Each item has six alternative answers (multiple choice) graded on five point scale. A scoring pattern of 5, 4, 3, 2, 1, and 0 was followed and total score was obtained. The scores obtained from this scale vary between 0 and 150, and for interpretation of raw scores, the norms of this test are mentioned in the [Table 1].

Table 1: Interpretation of Raw Scores

Category	Range
Saturated	107 and Above
High	90 - 106
Average	61 - 89
Low	46 – 60
Clean	45 and Below

Unstructured interview modality was used for discerning the subjective feelings of participants. Interview questions were framed under the domain of personal and social adjustment. Seven questions were asked to each and every participant. They are as follows:

1. How much of the time, during last 2 weeks, have you felt calm and peaceful?

2. Over the last 2 weeks have you been able to talk about your feelings openly with your friends?
3. How much of the time, during last 2 weeks, did you feel relaxed and free from tension?
4. Over the last 2 weeks have you got angry with any of your relatives?
5. During last 2 weeks, how much of the time have you been bored about things?
6. Over the last 2 weeks have you been offended or had your feelings hurt by your friends?
7. Did you feel depressed during last 2 weeks?

Procedure:- First, by using the aggression scale questionnaire, the aggression level of each subject was measured, and the group average was found to be 63.85. Post-test measurements of aggression level for the same subject were taken after following the practice of *Chandra Namaskrar* for 30 days.

Instructions:- The word *Chandra* means 'moon'. The sequence of Asanas is the same as *Surya Namaskar* except that *Ardha Chandrasana*, the half moon pose is performed after *Ashwa Sanchalanasana*. Whereas the twelve positions of *Surya Namaskar* relate to the 12 zodiac or solar phases of the year, the fourteen positions of *Chandra Namaskar* relate to the fourteen lunar phases.

1. **PRANAMASANA:-** Keep the eyes closed. Stand upright with the feet together. Bring the palms to meet in the center of your chest. Relax the whole body. **Modify:** If you have lower back problems, or if your knees/thighs are rubbing together bring your feet parallel hip width apart.
2. **Inhale – HASTA UTTANASANA:-** Bring the hands shoulder width apart, bring them up over the head, and reaching back. You should bend the back slightly. **Modify:** Hand straight up instead of back
3. **Exhale – UTANASANA:-** Bend forwards from the hips until the fingers or palms of the hands touch the floor on either side of the feet. Do not strain. **Modify:** If you have slipped disc or lower back problems keep the knees bent so that the palms come to the floor. Bring the hands onto the shins/ankle until you have enough flexibility to reach the floor
4. **Inhale – ASHWA SANCHALANASANA:-** Stretch the right leg back as far as is comfortable tucking the toes under. At the same time bending the left knee leaving the foot flat on the floor. Arch the back and gaze up to the sky. **Modify:** bring the back knee onto the floor
5. **Inhale – Ardha Chandrasana:-** Raise the hands, and stretch both arms over the head keeping them shoulder width apart. Arch the back look up, raising the chin. **Modify:** Bring the back knee onto the floor

6. **Exhale – PARVATASANA/MOUNTAIN POSE:-** Bring the palms onto the floor and stepping the left foot back beside the right, while lifting the hips up into the air. Lengthening through the spine, bringing the shoulders towards the ankles. Take a few breaths. (This posture is similar to Downward facing dog, except the feet are together). **Modify:** Keep the knees slightly bent if the posture is too intense.
7. **On the next Exhale – ASHTANGA NAMASKARA:** - Coming onto your toes, simultaneously lower the knees, chin, and chest to the floor. The hips and abdomen remain raised. **Modify:** Lower the knees first then the chest and chin
8. **Inhale – BHUJANGASANA:-** Keeping the hands and feet in place, slide the chest forward and raise the chest up. Opening the shoulders (pulling them away from the ears) and tilting the head back to look at the sky. The hips and thigh should be on the floor. **Note:** Keep the buttocks and thighs engaged (squeezed) to prevent problems in the lower back. Unless you are very flexible don't try to straighten your arms.
9. **Exhale – PARVATASANA/MOUNTAIN POSE:-** Keeping the hands and feet in the same position lift the hips up, bringing the heels to the ground, lengthening through the spine, bringing the shoulders towards the ankles. Take a few breaths here. As you exhale lifting the hips towards the sky and pressing the hands into the ground. (Same as step 6).
10. **Inhale – ASHWA SANCHALANASANA:-** Bring the left foot forwards between the hands, and push the pelvis forwards. Lift the torso and tilt the head back, arching the back and looking up to the sky (Same as step 4).
11. **Inhale – ARDHA CHANDRASANA:-** Raise the hands, and stretch both arms over the head keeping them shoulder width apart. Arch the back look up, raising the chin. (Same as step 5).
12. **Exhale – UTANASANA:-** Bring the right foot next to the left, and straighten the knees. Bring the crown of the head towards the floor. (Same as step 3).
13. **Inhale – HASTA UTTANASANA:-** Keeping the arms shoulder width apart, raise the torso with spine as straight as possible. Bring the hands up over the head, and reaching back, bending slightly. (Same as step 2).
14. **Exhale – PRANAMASANA:-** Bring the palms together in front of the chest center. (Same as step 1)

Repeat the cycle reversing the legs in Steps 4,5,10 and 11 (*Ashwa Sanchalanasana* and *Ardha Chandrasana*), to stretch the other side. Rest all the Postures will be the same.

Results: -A single-group paired sample t-test was conducted to evaluate the impact of intervention on students' scores on the aggression scale. [Table 2] and [Graph 1] shows that there was a statistically significant decrease in the aggression score from pre-test (M = 63.85, SD = 21.75) to post-test (M = 49.95, SD = 14.53), $t(39) = 8.42$, $P < 0.01$ (two-tailed). The mean decrease in aggression score was 13.9 with a 99% confidence interval. For computing the magnitude of intervention's effect,

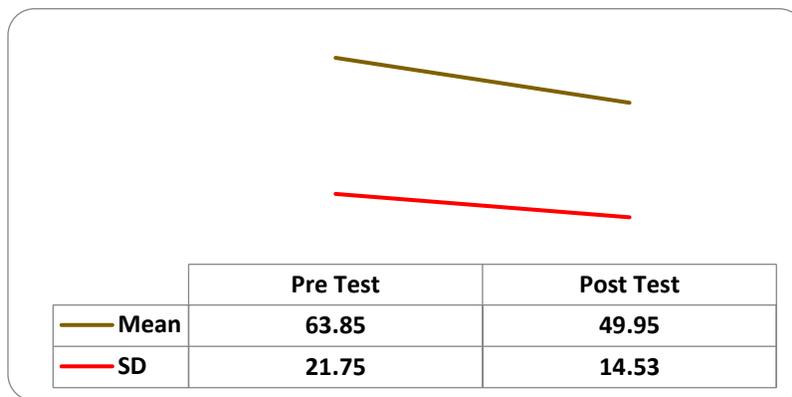
$$\text{eta-squared} = \frac{t^2}{t^2 + (N - 1)} = \frac{(8.42)^2}{(8.42)^2 + (40 - 1)} = 0.64$$

The eta-squared statistics was 0.64, which indicates large effect of the intervention on aggression. The guidelines proposed by Cohen (1988) for interpreting this value are: 0.01 = small effect, 0.06 = moderate effect, and 0.14 or more = large effect (Pallant, 2011).

Table 2: Pre and Post –Statistics on Aggression

Test	M	SD	Mean Diff.	SE _D	t	P
Pre-Test	63.85	21.75	13.9	1.65	8.42	<0.001
Post-Test	49.95	14.53				

N=40, df=39



Graph 1: Comparison between mean scores and standard deviation scores of pre-test and post-test of single group

Discussion:- It is observed from the results that *Chandra Namaskrar* practice has reduced the aggression level in adolescents. Therefore, null hypothesis of the present research that "*Chandra Namaskrar* practice does not have significant effect on the aggression level among adolescents" is rejected.

When the categories in Table 1 are compared with the obtained results in Table 2, we find that all the participants lie in the 'Average' category on aggression before intervention (M1 = 63.85) and the level of aggression of all the participants was decreased after completion of intervention course as they lie in the 'Low' category (M2 = 49.95).

The term "aggression" is a mode of frustration (Chauhan & Tiwari, 1971). Frustration is the motivational and emotional state which results from persistent blockage of goal-directed behavior. It can lead to maladaptive behavior (Pal & Naqvi, 1983).

The very famous hypothesis of "Frustration leads to Aggression" was formerly advanced by Dollard and Miller (1950), and they defined aggressive behavior as a logical and expected consequence of frustration. At present, most of the mental deviations such as frustration, aggression, inferiority, and insecurity have increased in adolescent and adulthood

stages. Clinical studies carried out by Masteron, Tucker, and Berk (1963) have brought to light the disturbing fact that in the normal adolescent population, the mentally ill and the doubtful cases outnumber the mentally healthy adolescents. Interdisciplinary researches (Yoga and Psychology) suggest that regular practice of yoga promotes strength, endurance, and flexibility, cultivates a sense of calmness and well-being (Mehta, Mehta, & Mehta, 1995), and reduces the psychological stress significantly (Bhogal, 1997; Kocher, 1973; Kocher & Pratap, 1971).

Chowdhury (2014) reported in her scientific research that *Chandra Namaskrar* is an integral part of the yogic approach and can be easily integrated into our daily life. She studied the utility of *Chandra Namaskrar* in daily life and found that the *Chandra Namaskrar*, as the name suggests, invites to bow to and cultivate the moon's soothing lunar energy. It helps to replenish our vital energy. It promotes balance, tones the spine, expands lungs, and stimulates the Vishuddhi Chakra. This asana improves good blood circulation, keeps abdominal tract well regulated and healthy, stimulates spinal nerves, stretches leg muscles and back. *Chandra namaskara* also relaxes sciatic nerves, tones pelvic muscles, regulates functioning of adrenal glands, relieves constipation, anger, improves confidence, helps in maintaining balance on both

sides of the body. It helps to develop a healthy sense of poise and respect for mind and body. Sharma (2012) reported in her scientific research that *Kapālabhāti* prāṇāyāma reduces the mental aberrations like anger, frustration, self-ego attachment, and aggression. She studied the impact of different yogic practices like *Kapālabhāti*, Anuloma-viloma, and Om-chanting on aggression in adolescents. She selected 100 school students for the experiment and employed analysis of variance (ANOVA) of the order of $2 \times 2 \times 2$ with repeated measure, and she concluded that *Kapālabhāti* with positive visualization is highly beneficial to the individual in overcoming the psychological problems.

In the present research, *Chandra Namaskar* was applied with a positive visualization like feeling of throwing out all the negative and injurious elements along with the air exhaled, and as a result, subjects reported that it was much more useful than what they expected.

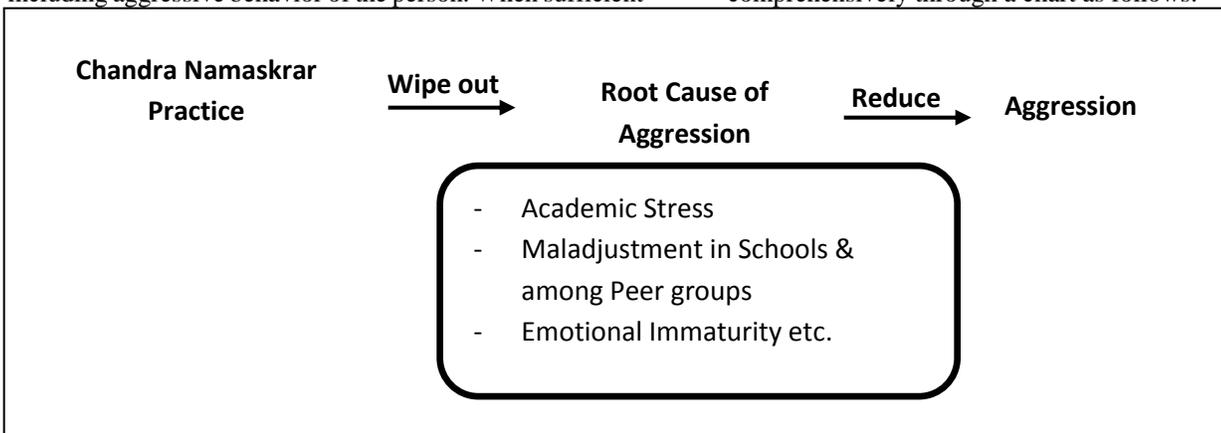
Physiological mechanism of Chandra Namaskar

Chandra Namaskar practice mainly affects our respiratory system which is responsible for our physical and psychological well-being. Physiologically, *Chandra Namaskar* is the process through which all residual CO₂ is exhaled by the lungs and fresh air is inhaled by the subject. This inhaled fresh O₂ is very much beneficial for physical health (Gore, 2005). We know that hypothalamus (a main part of the brain) is responsible for emotional behavior, including aggressive behavior of the person. When sufficient

amount of oxygen reaches the hypothalamus, it helps in the functioning of hypothalamus in a controlled manner. Another study by Van Lysbeth (1979) revealed that *Kapālabhāti* controls the circulation of blood within the brain. *Kapālabhāti* manipulates the volume of the total amount of blood in the body, the sum of the plasma volume and erythrocyte volume and the volume of blood in an individual's circulatory system. Blood volume can be calculated by determining the volumes of red blood cells and plasma cells. Females generally have less blood volume (3.8 L blood volume) whereas males have higher blood volume (5.3 L blood volume). Normal respiration consists of 12-18 breaths per minute, whereas *Kapālabhāti* can improve this up to 120 breaths per minute, which leads to a major increase in blood volume throughout, and thereby leads to better irrigation of the brain.

"Frustration-Aggression" cycle

In psychology, it is assumed that aggression is generally associated with frustration, fear, and a sense of inferiority. They are the main causes of an extreme form of aggression in the human behavior. In adolescents, frustration is found due to many reasons like academic anxiety, maladjustment in schools or peer groups, sexual conflicts, academic stress, etc. and ultimately frustration leads to aggressive behavior. It can, thus, be stated *Chandra Namaskar* eradicates the root cause of aggression and ultimately decreases the level of aggression in adolescents. This ideology can be shown comprehensively through a chart as follows:



Subjective feelings

Participants were asked some questions on their feelings before and after the intervention, and they reported positive changes in their feelings. Before intervention, the participants felt tiredness, irritation, and maladjustment in family and friend circle. But after intervention, they were happy to convey that they were feeling energetic, cool, had a calm mind, and could adjust well with others.

Limitation of the study:- In this study, single-group pre-post design was applied. Lack of control group is the limitation of this research. The findings of the current study may have limited generalize ability as the population of the current sample was limited to two institutions.

Conclusion:- To conclude, the present study shows that there is a significant positive effect of *Chandra Namaskar* practice on aggression. The practice of *Chandra Namaskar*

significantly decreases the aggression level of adolescent students and keeps them away from tension, stress, and anxiety.

Acknowledgements:- The authors would like to thank all the participants of this study. A special note of thanks to Ms. Bisweswari Sahu, Research Scholar, HNBBG Central University Uttarakhand, for her kind assistance.

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