To Study the Integrated Yoga Therapy (IAYT) Effect on Quality of Life and Positive and Negative Emotions in Tribal Adolescent Girls – A Single Group and Pre-Post Design

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Abstract The tribal community faces problems by way of Poverty, Malnutrition, Low literacy, Lack of Sanitation and Quality drinking water, Lack of basic health services, Social – Traditional belief and customs etc., an overall environment will be resulted in to poor quality of life; leads to poor mental health. This research study has planned to know the effect of short term integrated yoga module for to know the effect of Quality of Life and Positive Negative Emotions of the Tribal Adolescent School Girls; living in Chhatralaya. Tribal adolescent girls; aged 10 to 19, total 46 nos. of adolescent girls were participated and attended yoga classes taught by trained yoga therapist for 15 days. The module included loosening, Suryanamaskara, asanas, breathing exercises, Krida yoga, and meditation and relaxation techniques. The assessment was carried out one prior intervention as well as on 15th day. All the participants were asked practice regularly. The Quality of Life was measured by using Youth Quality of Life (YQOL-SF). This contains 15 perpetual items measuring the domain of sense of self, social relationship, environment and general quality of life. The Positive Negative Emotions were measured by using Positive Negative Affects Schedule (PANAS-SF). The PANAS is a 20 items self-report measure of positive and negative effects. This contains two 10 items mood scale and was developed to provide brief measure of positive and negative affects. For the results, normality test was carried out for consideration of parametric / non-parametric test. The data was found that it was normally distributed; Shapiro Wilk test; paired 't' test at 95% confidence interval level was carried out for hypothesis testing to measure the effects after 15 days IAYT. Quality of Life Results: The results showed significant improvement: t (34) = -2.202, P = 0.035. PANAS Results: PANASSF Score: For Positive Affects Mean Scores = 33.3 (S.D. ± 7.2). The results showed that there was no significant improvement (p = 0.187). The Mean Score and Standard Deviation before and after IAYT: Before: M = 39.97 (S.D. ± 5.71), After: M = 41.285 (S.D. ± 6.355). For Negative Affects: The Mean Scores according to PANAS-SF for NA is: M = 17.4 (S.D. ± 6.2). The results showed that there was no significant improvement (p = 0.068). The Mean Score and Standard Deviation before and after IAYT: Before: M=29.37 (S.D. ± 4.81), After: M = 26.91 (S.D. ± 6.96). For Positive Affect (PA): Parameters Showed significant improvement: t (9) = -2.709, P = 0.024. For Negative Affect (NA) Parameters Showed no significant improvement: t (9) = -2.022, P = 0.074. Combine Effect of Quality of Life and Positive Negative Emotions: Increased effect on Positive Affects...
leads to improvement in Quality of Life and decrease the Negative Affects. Improvement in Quality of Life leads to increase in Positive Affects and decrease in Negative Affects. Thus, change in Quality of Life impacts over Emotions and Change in Emotions impacts over Quality of Life. Conclusion: Study shows the general dominants problems in tribal adolescent girls is due to their lower Quality of Life and Emotional imbalances. These can be improved with the application of regular practice of IAYT and for that awareness of about Yoga is essential for them. Finding shows that 15 days short duration Yoga intervention has significant effect on Quality of Life and Positive Affect parameters; reduction in Negative Affect found faster than Positive Affect. It is to be concluded that for overall improvement in Quality of Life and Positive and Negative Emotions, long term IAYT would be required for better to best.

**Keywords** Integrated Approach of Yoga Therapy; Quality of Life; Positive – Negative Emotions; Tribal Adolescent Girls

1. Introduction

Yoga; a way of life, practical science of human nature that enables us to realize our real selves. It deals with philosophy, psychology and practicality of conscious evolution, enables us to search the depths of the being theoretically, but first of all, experientially (Havanans, 2011).

The term ‘tribe’ is derived from the Latin word ‘tribus’. Tribal people in India are called Ādivāsi.

About 30% of India’s population belongs to the adolescent age group. Nearly 50% of adolescent girls aged between 15-19 years are underweight in India (UNICEF, 2012). From the demographic data (2011 Census) in Gujarat about 15% population can be considered for tribal population and the Tribal adolescent girls population can be considered around 2-3% (Demographic Status of Scheduled Tribe Population of India, Census, 2011; Sanjay, 2014).

Adolescence (10-19 years) is a period of transition between childhood and adulthood. It is an important physiological phase of life characterized by an exceptionally rapid rate of growth and development both physical and psychological (Kumar et al., 2014). Nutritional needs are required for efficient growth and development, the nutritional status of adolescent girls, the future mothers, contributes significantly to the nutritional status of the community.

The position of tribal girls is dependent, facing number of problems related to social structure – descent, succession and inheritance, economy problems & livelihood, motivation for education, food habits, decreased physical activities etc. They are becoming susceptible to various metabolic risk factors; related to their dietary profile and physical activity, Major physical and mental problems due to lifestyle are Anemia, Malnutritional disorders, Lower BMI, Menstrual & pregnancy related problems, Anxiety, Depression, Stress etc. and it is worth investigating the prevalence of life style disorders. Thus, studies related to their mental – physical disorders among tribal girls needs immediate attention (Kshatriya, 2014).

Quality of life is a uniquely personal perception, denote the way that individual feel about their aspects of lives (Quality of Life measurement, Gill & Feinstein, JAMA Aug. 24/31, 1994, Vol 272 No.8).

Emotions can be defined as mental state of wellbeing consists of different feelings, thoughts, bodily changes, expressive behaviors’, and inclinations to act. The precise combination of these elements varies from emotion to emotion and may or may not be attended by overt behaviors’ [Emotions (Social Psychology)].
Positive Affects (PA) Frederickson (2009) identified ten most common positive emotions as, Gratitude, Happiness, Interest, Calmness, Confidence, Pride, Enjoyment, Inspiration, Awe and Love. High Positive Emotions is a state of high energy, full concentration, and pleasurable engagement. Low Positive Emotions is characterized by sadness and lethargy (Watson and Clark, 1988; Watson, D. and Tellegen, A. 1988).

Negative Affect (NA) is a general dimension of subjective distress and unpleasurable engagement that subsumes a variety of aversive mood states, including anger, contempt, disgust, guilt, fear, and tension, with low Negative Emotions being a state of calmness and serenity.

The aim and objectives of the study is to measure the effect of Integrated Approach of Yoga Therapy on Quality of Life and Positive and Negative Emotions in Tribal adolescent girls by creating awareness about yoga and find out combine effect of QOL and PANAS. For above, following hypothesis were tested:

IAYT will be effective on:

1. Quality of Life
2. Positive emotions
3. Negative emotions
4. Positive emotions parameters individually
5. Negative emotions parameters individually and the Null hypothesis were in terms of “IAYT will be not effective” for above 5 hypotheses.

2. Material and Methods

The Institutional Ethical Committee Approval (LAKULISH YOGA UNIVERSITY, AHMEDABAD) was obtained before the starting of the study. The IAYT was done at Shree Santram Kanya Chhatralaya, 18, Shantikunj Society, VKV Nadiad, Gujarat. The heads of the charitable trust were explained the details of the study and their written consent was taken. Each participant who participated in IAYT was also explained in detail about the study.

Sample Size: 46 nos.

Inclusion Criteria

Those who were adolescents’ girls from tribal area and willing to participate in a 15 days IAYT programme were selected.

Exclusion Criteria

Those who were Non-adolescent girls, non-tribal, suffering from any chronic conditions or disabilities, not attended 15 days IAYT and not considered for Normality test during statistical analysis were excluded.

Design

In this study, single group pre-post design was chosen as the researcher attempts to test the effectiveness of the yoga.
Methods

From the available 49 girls, the girls are selected as per selection criteria and accordingly 46 subjects attended the 15 days yoga intervention programme given by yoga therapist. The intervention included jogging, loosening, breathing exercises, dynamic Suryanamaskara, asana, pranayama, relaxation techniques. Krida yoga on the first day, 8th day and 15th day. The assessment was done 1st day prior to intervention and on 15th day after completion of IAYT class. Questionnaires of Quality of Life and PANAS were translated in local language for participants.

Both, Youth Quality of Life Instrument – Short Form (YQOL-SF) Version 2.0 and Positive and Negative Affect Schedule (PANAS – SF) were assessed before and after intervention. Vital parameters included IN GENERAL how you feel about your life on 0-10 scale with Not

At all to Very Much and then transformed to 0-100 scale with a higher score representing a higher quality of life. Mean is calculated. The PANAS consists two 10 items mood scales and was developed to provide PA and NA. the Positive emotions such as, Interest, Excitement, Strong, Enthusiastic, Proud, Alertness, inspired etc. and the Negative Emotions such as, Distressed, Upset, Guilty, Scared etc. As per PANAS scale structure item nos.1, 3, 5, 9, 10, 12, 16, 17 and 19 shows positive emotions and remaining item no. shows Negative Emotions.

Intervention

Table 1 shows the IAYT module, developed by a researcher Yoga therapist in consultation with Guide and approved by research guide. The intervention was given every day, one hour in the evening time.

| No. | Types of Yoga Exercises                      | Round | Time (minutes) |
|-----|---------------------------------------------|-------|----------------|
| >>  | Krida Yoga                                  |       |                |
| 1   | Prayer                                      |       | 5              |
| 2   | Loosening Exercise                          | Round | 5              |
|     | #Slow jogging                               |       | 3/5            |
|     | #Neck movement # Wrist movement             |       | 3/5            |
|     | #Shoulder movement # Waste rotation         |       | 3/5            |
|     | #Bending:                                   |       |                |
|     | > Forward, Backward, Side                   |       | 3/5            |
|     | # Knee rotation # Ankle rotation            |       | 3/5            |
| 3   | Relaxation: IRT                            |       | 1              |
| 4   | Breathing Practice                          |       | 5              |
| 5   | Relaxation: Savassana - Deep Breathing      |       | 1              |
| 6   | Surya Namaskar (Dynamic)                    |       | 10             |
| 7   | Relaxation: Savassana - QRT                 |       | 3              |
| 8   | Standing Assanas                            |       | 2              |
|     | #Tadasan # Vrukshana #Ardhchakrasana        |       | 1              |
|     | #Pad hastasana #Trikonasana                |       | 1              |
| 9   | Sitting Assanas                             |       | 3              |
|     | #Ushtrasanas #Gurulonashan                  |       | 2              |
|     | #Butterfly & Bhadrasan                      |       | 2              |
|     | #Vajrasana #Shashankasana                   |       | 2              |
| 10  | Prone Asanas                                |       | 3              |
|     | #Bhujangasana #Salabhasana                  |       | 2              |
3. Results

Results for Quality of Life and Positive and Negative Emotions are summarize in Table 2.

Data was found normally distributed, Shapiro Wilk test was considered, ‘t’ test was carried out for hypothesis testing at 95% interval level. For Quality of Life \( p = 0.035 \), which shows significant improvement.

For Positive Affect, according to PANAS-SF scoring: Positive Affect Score: Mean Score = 33.3 (S.D.±7.2). For Negative Affect Sore: Mean Score = 17.4 (S.D. ± 6.2). Achieved result is: For Pre-Positive: Mean Score = 39.9714 (S.D. ± 5.7111), for Post Positive: Mean Score = 41.2857 (S.D. ± 6.35504). The results show improvement is achieved. In respect of hypothesis testing, achieved \( p \) value is 0.187, hence no significant improvement of Positive Affect.

For Pre-Negative: Mean Score = 29.3714 (S.D. ± 4.80861). For Pre-Negative: Mean Score = 26.9143 (S.D.± 6.9552) The results show improvement is achieved. In respect of hypothesis testing, achieved \( p \) value is 0.068, hence no significant improvement of Negative Affect.

Positive Parameters and Negative Parameters were separately assessed for effect of IAYT on Positive and Negative emotions. For Positive Parameters: Pre-Mean Value :141.9 (S.D. ± 9.445) and Post Mean Value 151.4 (S.D. ± 8.383) which shows improvement. Hypothesis is tested and achieved \( p \) value is 0.024, which shows significant improvement. For Negative Parameters: Pre-Mean Value: 100.1 (S.D. ± 14.03527) and Post Mean Value 90.8 (S.D. ± 11.00303) which shows improvement. Hypothesis is tested and achieved \( p \) value is 0.074, which shows no significant improvement.

| Table 2: Summary of results for quality of life and positive & negative emotions |
|---------------------------------------------------------------|
| **Variables** | **Mean** | **Standard deviation** | **df** | **P-value** |
| Quality of life | 131.6571 | 10.12551 | | |
| Pre | 135.5143 | 6.76223 | | |
| Post | 3.85714 | 10.36153 | 34 | 0.035* |
| Positive effects | 39.9714 | 5.71111 | | |
| Pre | 41.2857 | 6.35504 | | |
| Post | 1.31429 | 5.76894 | 34 | 0.187 |
| Negative effects | 29.3714 | 4.80861 | | |
| Pre | 26.9143 | 6.9552 | | |
| Post | 1.31429 | 5.76894 | 34 | 0.068 |
| Positive parameters | 141.9 | 9.445 | | |
| Pre | 151.4 | 8.383 | | |
| Post | 9.5 | 11.088 | 9 | 0.024* |
| Negative parameters | 100.1 | 14.03527 | | |
| Pre | 90.8 | 11.00303 | | |
| Post | 9.3 | 14.54533 | 9 | 0.074 |
4. Discussion

The study is assessed by reviewed the ancient literature and scientific literature. The ancient literature review is based on various classical texts such as, Patanjali Yoga Sutra, Bhagvad Gita, Upanishad, Hathayoga Texts, Ayurveda texts etc. Review providing knowledge about relationship between yoga and mental health and good quality of life.

Earlier studies in scientific literature review shows that most of tribal girls are belong to low socio-economic status, various physical and psychological problems were found to be significantly higher (Swarnalata et al., 2016).

The yoga showed significant reduction in negative attitude and increase in positive attitude (Ashwini HR et. al, 2015). Yoga plays protective or preventive role in maintaining mental health (Khalsa et al., 2011) and also provides the lifelong behavioral skill, enhance self-efficacy and self-confidence. (Büssing et al., 2012).

Yoga help children and young people with stress and thus contribute positively to balance in life, well-being and mental health (Hagen et al., 2014). Majority of tribal adolescent were found to have poor level of emotional intelligence (Nandwana and Joshi, 2010).

The Yoga practices are adopted to balance and harmonize the disturbances at each of the 5 koshas and tackle the complex psychosomatic ailments. The IAYT module is based on classical Hathayoga texts.

Effect of IAYT on Panch Kośa Level

The Figure 1 shows the Panch Kośa model. The disturbances in the Manomaya Kośa percolates into the physical layer (Annamaya Kośa) through the Pranamaya Kośa. Hence in the treatment of the psychosomatic ailments, it becomes mandatory to work at all these levels of our existence to bring about the quickest results. The Integrated Approach thus consists in not only dealing with physical sheath, relief of which could at best be temporary as is happening with the drugs used in the modern medicine to treat diseases of the psychosomatic illnesses. It also includes using techniques to operate on different sheath of our existence. The Figure 2 shows the pathophysiology of disease manifestation stages according to modern science.
Effect of IAYT

Quality of Life includes social parameters and directly affect the life style of tribal adolescent girls. poor life style, poor education, lack of healthy social interaction, etc. give rise to unhealthy environment – poor life quality, ultimately effects the Samskara and these leads to Aadija – Vyadhi at PANCH KOŞA level (Nagendra and Nagarathna, 2015: Integrated approach of yoga therapy for positive health. Swami Vivekanand Yoga Prakashan, Bangalore).

According to Patanjali: In our original state we are totally stress free, we are blissful. The state devoid of any tension and pressure. Thinking or feeling is the sense of all bliss, knowledge, creativity and freedom, Patanjali call it ‘Self’ (PYS II / 20) (Nagendra and Nagarathna, 2015: New perspective in stress management. Swami Vivekanand Yoga Prakashan, Bangalore).

Emotional imbalances associated with mental and physical disturbances like feelings, thoughts, behaviors etc. in the form of strong likes and dislikes bring about imbalances in prana (vital energy) in the Pranamaya Kośa, which percolates to the Annamaya Kośa i.e. physical sheath (Nagendra and Nagarathna, 2016: Yoga practice for anxiety, depression. Swami Vivekanand Yoga Prakashan, Bangalore).

In PANAS emotions are grouped as Positive Affect and Negative Affect of different intensities. The Negative Affect (NA) leads towards anxiety, depression and other psychosomatic illness, whereas Positive Affect (PA) leads towards higher state of bliss, which brings lower down NA.
Table 3: Changes in positive parameters for effectiveness

| % Changes in PA weightage (increased) | % Changes in PA weightage (decreased) |
|--------------------------------------|--------------------------------------|
| Before                               | After                                |
| Interested                           | 9.09                                 | 10.77                | 10.29                | 10.24                |
| Excited                              | 9.87                                 | 10.24                | 11.06                | 10.96                |
| Strong                               | 9.94                                 | 10.04                | 9.73                 | 9.71                 |
| Active                               | 9.23                                 | 9.45                 | 11.06                | 9.71                 |
| Total                                | 38.13                                | 40.49                | 10.08                | 9.58                 |
| Attentive                            | 9.65                                 | 9.31                 |                       |                      |
| Total                                | 61.87                                | 59.51                |                       |                      |

Table 4: Changes in negative parameters for effectiveness

| % Changes in NA weightage (increased) | % Changes in NA weightage (decreased) |
|--------------------------------------|--------------------------------------|
| Before                               | After                                |
| Guilty                               | 9.69                                 | 8.15                 | 11.69                | 11.78                |
| Scared                               | 12.19                                | 10.02                | 9.29                 | 11.45                |
| Jittery                              | 11.59                                | 9.47                 | 8.39                 | 9.80                 |
| Afraid                               | 9.59                                 | 9.47                 | 9.29                 | 9.69                 |
| Total                                | 43.06                                | 37.11                | 8.09                 | 8.70                 |
| Nervous                              | 10.19                                | 11.45                |                       |                      |
| Total                                | 56.94                                | 62.89                |                       |                      |

Based on Table 3 and 4, it is observed that 4 numbers of Positive Parameters are increased and parallel 4 numbers of Negative Parameters are decreased. Thus, it can be said that increase – decrease in Positive and Negative parameters are equally proportionate to each other.

Combine Effect of QOL AND PANAS

Based on the above discussion of results, it can be concluded that Quality of Life and Positive – Negative Emotions are related with each other. The combine effect of Quality of Life and PANAS can be summarized as under (Figure 3):

![Figure 3: Model of combine effect of QOL + PANAS](image-url)
From the above; combined effect of Quality of Life and PANAS, it can be concluded that the IAYT is effective on QOL and PANAS. Increased effect on Positive Affects through IAYT leads to improvement in quality of Life and decrease the Negative Affects. Likewise, Improvement in Quality of Life leads to increase the Positive Affects and thereby decrease in Negative Affect.

It can be concluded that any two factors i.e. Quality of Life + Increase in Positive Emotions will lead to control another remaining factor.

5. Conclusion

Study shows the general dominants problems in tribal adolescent girls is due to their lower Quality of Life and Emotional imbalances. These can be improved with the application of regular practice of IAYT and for that awareness of about Yoga is essential for them. Finding shows that 15 days short duration Yoga intervention has significant effect on Quality of Life and Positive Affect parameters; reduction in Negative Affect found faster than Positive Affect. It is to be concluded that for overall improvement in Quality of Life and Positive and Negative Emotions, long term IAYT would be required for better to best.

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