

CHAPTER 6

RESULTS

6. RESULTS

6.1 ADOLESCENTS' ATTITUDE TOWARDS VIOLENCE

The following sections outline what has been found in the present research work in respect of adolescents' attitude towards violence.

FIGURE 3: NORMALITY TEST - ADOLESCENTS' ATTITUDE

TOWARD VIOLENCE

The research data has a Cronbach's alpha of 0.766, which is an indicator of good internal consistency of six items of scale. Data is normally distributed (Kolmogorov – Smirnov (Sig) .051).

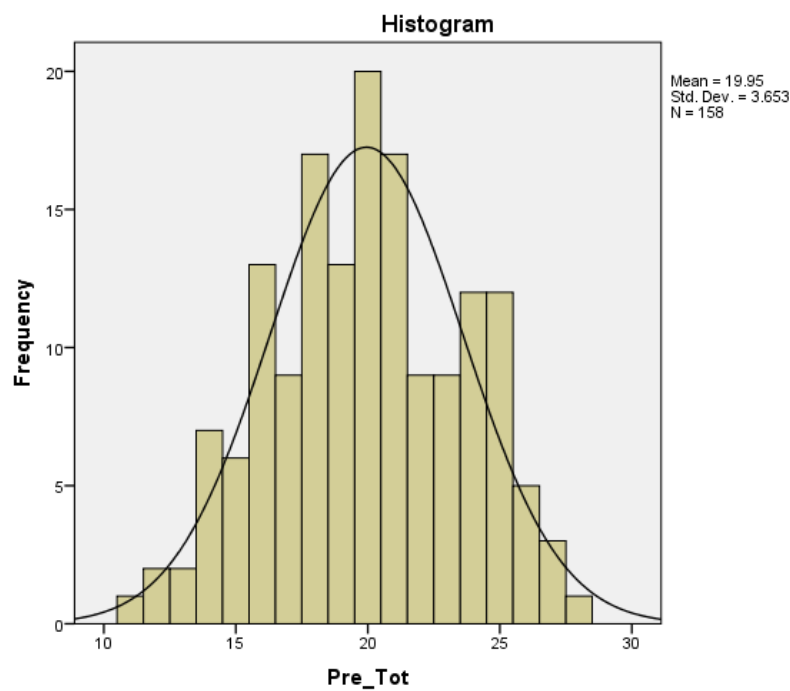


FIGURE 4: MEAN SCORE COMPARISON - ADOLESCENTS' ATTITUDE TOWARD VIOLENCE

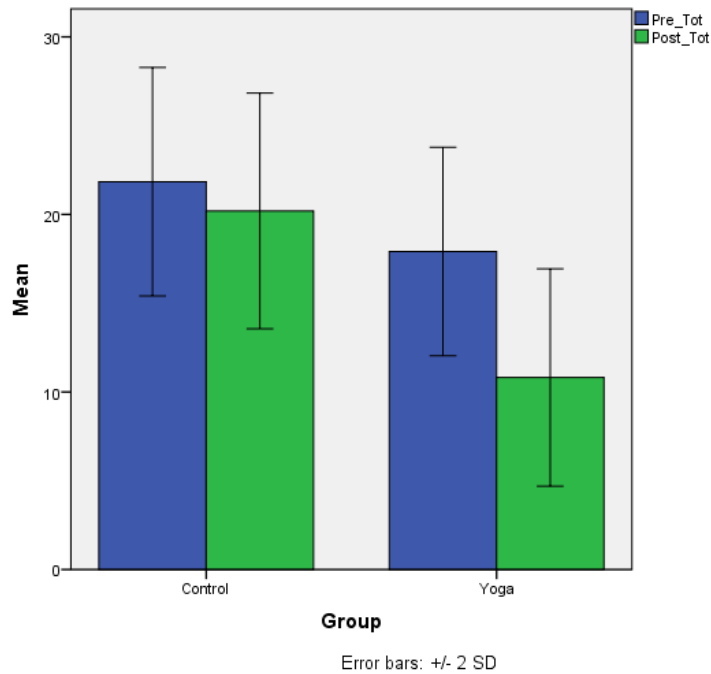


TABLE 4: ATTITUDE TOWARDS VIOLENCE:

IMPACT OF ADOLESCENTS' AGE

Age (Years)	Frequency	Pre (Mean)	Post (Mean)	Pre-Post (Mean)	% Mean difference	Sig (2 tailed)
12	13	22.62	16.69	5.93	22.22%	.000
13	38	21.45	16.68	4.77	22.24%	.000
14	37	19.81	14.76	5.05	25.49%	.000
15	69	18.67	15.33	3.34	17.89%	.000
16	1	22.00	23.00	- 1.00	- 4.55%	NA

TABLE 5: ATTITUDE TOWARDS VIOLENCE (ATV) – PAIRED “T” TEST

Cronbach’s Alpha .766						
Normality Test: Kolmogorov-Smirnov (Sig) .051						
Measures	Yoga			PE		
	Overall	Male	Female	Overall	Male	Female
Pre Mean	17.910	19.970	15.730	21.840	22.910	20.670
SD	2.936	1.967	2.090	3.218	2.827	3.247
Post Mean	10.820	10.410	11.240	20.200	22.560	17.590
SD	3.063	3.185	2.910	3.320	1.968	2.436
Pre-Post (Mean)	7.090	9.560	4.490	1.640	0.350	3.080
% Mean Difference	39.59%	47.87%	28.54%	7.51%	1.53%	14.90%
Sig (2-tailed)	.000	.000	.000	.000	.507	.000

Table-5 has salient results of the paired “t” test tabulated in respect to gender also.

Paired sample “t” test at the overall level shows a significant decrease in both yoga and PE groups ($p < .001$). But the mean difference in yoga group is 39.59%, as against 7.51% mean difference in the case of PE group. Thus, though there is a decrease in their attitude towards violence in the PE group, it is not as significant as that of yoga group. Thus, yoga could be a powerful intervention to reverse the adolescent’s ATV compared to PE; and the outcome is comparable to several previous studies (Amaranath, Nagendra, 2015; Deshpande et al., 2008b; Singh, 2015).

Both males and females in yoga group a showed significant decrease in their ATV ($p < .001$). However, males among PE group showed non-significant decrease ($p > .005$) and females

among PE group showed significant decrease in their ATV ($p < .001$) (but not as much as yoga group females). This again demonstrates that yoga brought about a significant decrease in the participants' ATV strategies; and significant increase in the use of non-violent strategies. This outcome also demonstrates that irrespective of gender, yoga can bring about significant decrease in adolescents' ATV more than the PE does.

6.2. ADOLESCENTS' BELIEFS ABOUT AGGRESSION

SPSS normality tests showed that the data is not normal (Kolmogorov (Sig) 0.005 $p < .05$). Hence, non-parametric tests were done (Wilcoxon Signed Ranks Test .000, $p < .05$). Cronbach's alpha was .805, indicating good reliability among different items of the scale.

FIGURE 5: NORMALITY TEST – ADOLESCENTS' BELIEFS ABOUT AGGRESSION

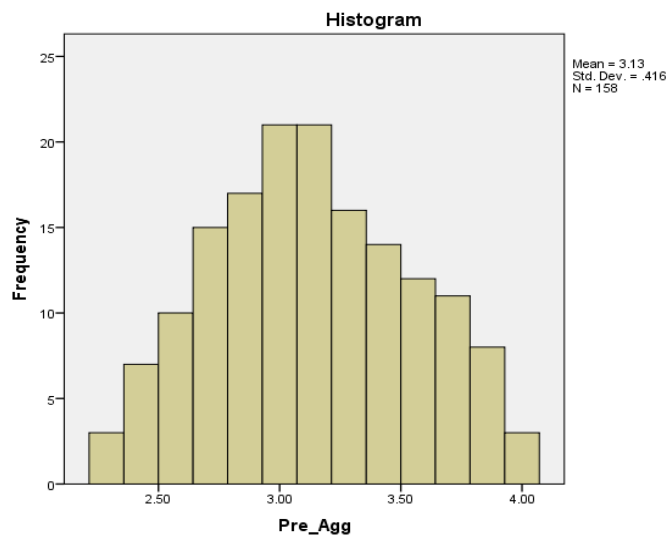


FIGURE 6: MEAN SCORE COMPARISON – ADOLESCENTS’

BELIEFS ABOUT AGGRESSION

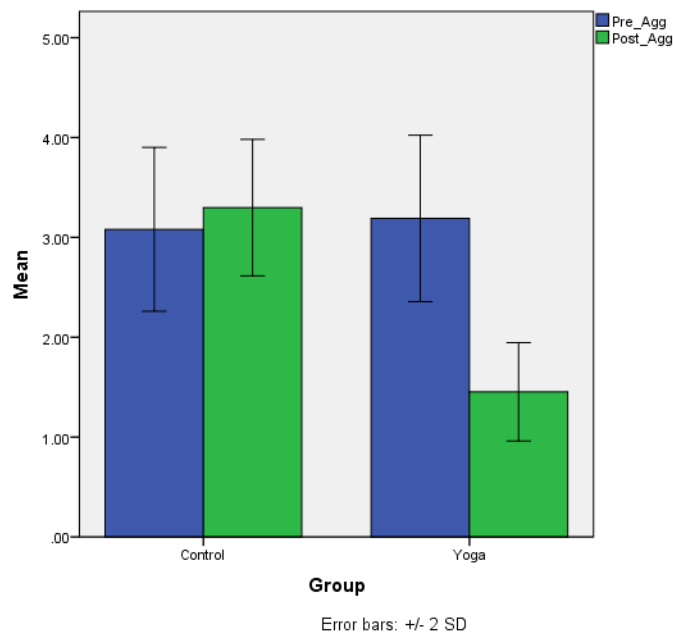


TABLE 6: SUB-SCALE: BELIEFS ABOUT AGGRESSION:

PAIRED ‘T’ TEST RESULTS

(Items 3,4,6,9,10,11,12)						
Cronbach’s-Alpha 0.805; Kolmogorov(Sig) 0.005						
Nonparametric: Wilcoxon-Signed-Rank Test: 0.000						
	Yoga			PE		
	Overall	Male	Female	Overall	Male	Female
Pre-Mean	3.19	3.29	3.09	3.08	3.23	2.92
SD	0.417	0.350	0.461	0.410	0.361	0.402
Post-Mean	1.45	1.51	1.39	3.30	3.36	3.23
SD	0.246	0.280	0.192	0.341	0.335	0.340
Pre-Post (Mean)	1.74	1.78	1.70	-0.22	-0.13	-0.32
% Mean difference	54.55%	54.10%	55.02%	-7.14%	-4.02%	-10.96%
Sig(2-tailed)	.000	.000	.000	.001	.083	.002

Yoga group showed a significant decrease in their beliefs about aggression ($p < .001$). But the PE group showed significant increase in their beliefs about aggression ($p < .001$). On similar lines, males in yoga group a showed a significant decrease in their beliefs about aggression ($p < .001$); whereas PE group males showed a non-significant increase in their beliefs about aggression ($p > .001$). Females in yoga group showed a significant decrease in their beliefs about aggression ($p < .001$); whereas the PE group females showed a significant increase in their beliefs about aggression ($p < .005$).

6.3 ADOLESCENTS' BELIEFS ABOUT ALTERNATIVES TO AGGRESSION

Cronbach's alpha was .657, indicating good reliability among different items of the scale. Normality tests showed that the data is not normal (Shapiro-Wilk (Sig) .000 scale $p < .05$). Hence, non-parametric test was done (Wilcoxon Signed Ranks Test .000, $p < .05$).

FIGURE 7: NORMALITY TEST – ADOLESCENTS' BELIEFS ABOUT ALTERNATIVES TO AGGRESSION

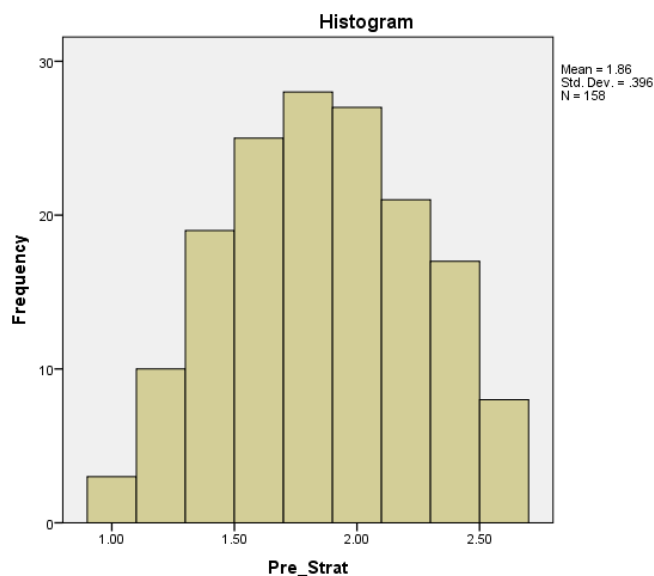


FIGURE 8: MEAN SCORE COMPARISON – ADOLESCENTS’ BELIEFS ABOUT ALTERNATIVES TO AGGRESSION

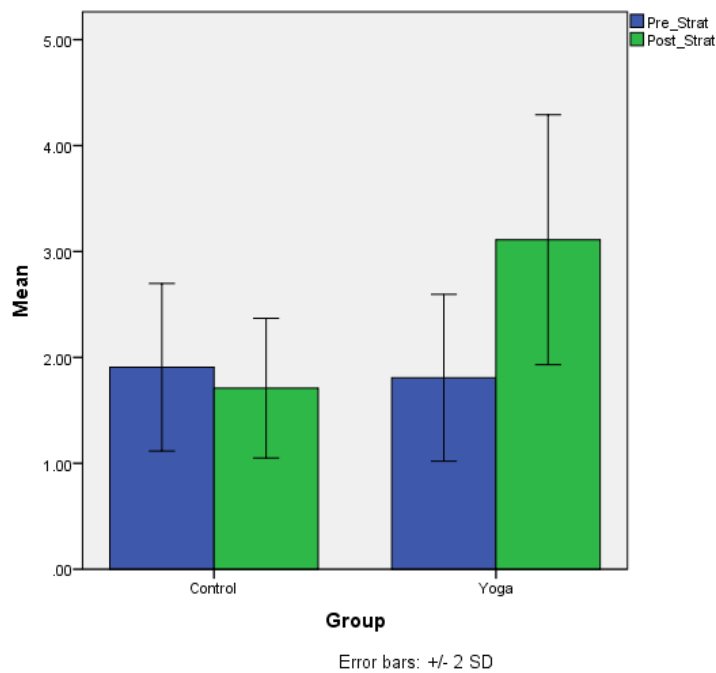


TABLE 7: SUB-SCALE: ADOLESCENTS’ BELIEFS ABOUT ALTERNATIVES TO AGGRESSION - RESULTS OF ‘T’ TEST

Cronbach’s-Alpha 0.657						
Kolmogorov (Sig) 0.000; Nonparametric-Wilcoxon-Signed-Ranks 0.000						
	Yoga			PE		
	Overall	Male	Female	Overall	Male	Female
Post (Mean)	3.11	2.57	3.68	1.71	1.65	1.78
SD	0.590	0.239	0.159	0.330	0.311	0.340
Pre (Mean)	1.81	1.72	1.90	1.91	1.75	2.08
SD	0.394	0.310	0.451	0.395	0.329	0.396
Post-Pre (Mean)	1.30	0.85	1.78	-0.20	-0.10	-0.30
% Mean-difference	71.82%	49.42%	93.68%	-10.47%	-5.71%	-14.42%
Sig(2-tailed)*	.000	.000	.000	.001	.120	.003

*Paired-sample T Test

Yoga group (overall) showed a significant increase in their beliefs about alternatives to aggression ($p=.000$) whereas, PE group (overall) showed a significant decrease in their beliefs about alternatives to aggression ($p=.001$).

Yoga group males showed a significant increase in their beliefs about alternatives to aggression ($p=.000$) whereas, the PE group males showed a non-significant decrease in their beliefs about alternatives to aggression ($p=.120$).

Yoga group females showed a significant increase in their beliefs about alternatives to aggression ($p=.000$) whereas, the PE group females showed a significant decrease in their beliefs about alternatives to aggression ($p=.003$).

CHAPTER 7

DISCUSSIONS

7. DISCUSSIONS

7.1 EFFECT OF YOGA ON ADOLESCENTS' ATTITUDE TOWARDS VIOLENCE

Earlier researchers have shown mixed patterns as for as the effect of yoga on aggressive or violent behavior is concerned. In one of the randomized control trial, no significant changes were reported between groups (Yoga/PE) in self-reported positive affect, aggression indices, and global self-worth (Haden, Daly, & Hagins, 2014). For children practicing yoga (experimental group), negative affect (wherein 'hostility' is one of the items) increased as compared to the physical exercise group. These findings suggest that yoga and physical exercises curricula do not differentially impact on middle school children's emotional and behavioral operative. However, most other empirical studies suggest that yogic interventions appear to offer identical or superior benefits compared to physical exercises (Govindaraj et al., 2016; Ross & Thomas, 2010). Further, most of the earlier scientific studies have also demonstrated that yoga practice would reduce the violence and aggressive behavior (Berger, Silver, & Stein, 2009; Deshpande, Nagendra, & Nagarathna, 2009; Frank, Bose, & Schrobenhauser-Clonan, 2014; Reddy, 2015; Khemka, Hankey, & Ramarao, 2011; Raghuraj & Telles, 1997; Ramadoss & Bose, 2010; Schell, Allolio, & Schonecke, 1994; Vengatesh P, 2014). Thus, consistent with this majority of the studies, which have measured different dimensions of aggression and violence, the findings of the present study show that intervention of yoga can decrease the adolescents' attitude towards violence significantly as compared to physical exercise.

Many studies reported that women are more empathy-driven compared to men, and men are found to be significantly violent, highly approving of violence, interested in heated discussions, war, interest in penal code, curious of political disputes, crime stories, violent

news items, interested in violent video games, violent media, and support capital punishment (Anderson et al., 2006; Sharma & Marimuthu, 2014). Hence, in the present study, it was expected that compared to girls, boys would be more aggressive. The data analysis in the present study did support this view. In both yoga and PE groups, male adolescents were having a higher attitude towards violence. This gender-related difference in attitude towards violence level may simply demonstrate the factual phenomenon that females and males have different 'perceptions,' 'approaches,' 'styles' or 'strategies' of violent behavior; and may differ according to the context. The instinct theory of aggression (notably Sigmund Freud) presupposes that there exists a 'sex instinct' which makes males more likely candidates than females to outbursts of anger, violence, and aggression (Eron & Huesmann, 1994). Further, the theory of hormones and chromosomes, which became popular since 1920, says that excessive violent attitude in males is attributable to presence of extra 'Y' hormone and followers of this theory are of the opinion that by increasing 'Y' hormone, a person's aggressive/violent attitude can be increased (Jarvik et al., 1973).

Some research studies say that level of aggression/violence is inversely related to age (Sharma & Marimuthu, 2014). The age brings about maturity and sensitivity to the pains of others, and owing to this fundamental change in their attitude, adolescents increasingly become aware of their surroundings, their relations, and responsibilities with advancing age (Huesmann & Guerra, 1997). Accordingly it was predicted in the present study that the adolescents' attitude towards violence would decrease as they get older. The pre-intervention mean scores of attitude towards violence (age-wise) is 12 years (22.62), 13 years (21.45), 14 years (19.81), 15 years (18.67), showing a gradual tapering as the age increases and thus the age of the adolescent is a good predictor of level of attitude towards violence (inverse relation). Even in case of post-intervention, this correlates with age mostly remains, and

attitude towards violence (age-wise) is 12 years (16.69), 13 years (16.68), 14 years (14.76), 15 years (15.33).

The present study demonstrated that four weeks' intervention of integrated yoga module on yoga group and intervention of physical exercises on PE group decreases adolescents' attitude towards violent strategies, and increases use of non-violent strategies. However, the significance of the change in case of yoga group is more pronounced than the physical exercises group. If aggression and violent attitude is uncontrolled or unrestrained rapidity or speed or provocation, aimed at instant intent of initiating harm to others, yoga is the art of slowing down, to remain equipoise in all conditions, which can cause to increase the self-control and tolerance (*'titikṣa'*) (Adidevananda, 2003; Nagendra, 2000). Owing to this slowing down the person is more thoughtful about his actions. Devotional sessions, spiritual discourses, *bhajans* (devotional songs), recitation of *Vedic mantras*, (all are integral parts of yoga) have direct impact on person's behavior and emotions and make him more sensitive to the happenings around and the pain of others (Nagendra, 2000).

Improved self-control and emotional change make a person reciprocate with 'empathy,' which is a derivative of sensitivity (to the pains/sufferings of others) and to behave responsibly (Hay, 2001). Empathy and level of aggression are inversely related to each other (Anderson et al., 2010). *Yogāsanas* are very methodical bodily stretching movements, perfectly synchronized with slow breathing, with complete mental awareness and mindfulness, capable of exercising various organs, systems, muscles, tissues and provide them a way to deal with emotions, character, attitudes and tensions and can bring about healthy changes in several psychopathological conditions, as body and mind are different facets of one's personality (Govindaraj et al., 2016). Peaceful, harmonious society is need of the hour, and research has to try for interventions and methods that can bring about strong

and effective psychological changes, to achieve harmony with nature, with society (where we are the integral parts), and finally to ourselves. Yoga can do this (Ditmanson, Koller, & Kupperman, 2002).

7.2 EFFECT OF YOGA ON ADOLESCENTS' BELIEFS ABOUT AGGRESSION AND ALTERNATIVES

'Belief' is an outcome of one's belief system which is deep rooted in one's personality (Swami Vivekananda, 1988). In the present study, it is clearly evidenced that even this kind of deep-rooted negative personality trait may be corrected with yoga intervention.

Some studies say that there exists a gender difference owing to the effect of empathy on level of aggression (Anderson, Benjamin Jr., Wood, & Bonacci, 2006; Carnagey & Anderson, 2007). Empathy in the case of females would influence the level of aggression more than the males (Robertson et al., 2007). Hence, in the present study, it was theorized that females would have less favorable beliefs supporting aggression; and higher support for non-violent strategies. In line with these studies and hypothesis, in the present study, the males demonstrated higher beliefs supporting aggression and lower beliefs supporting non-aggressive strategies. Further, change in females' beliefs about alternatives to aggression in the yoga group (93.68%) is more than the change in males in yoga group (49.42%). This again indicates that females respond more than the males do. The reason could be attributed to the higher level of empathy in the case of females, who express themselves more positively and the impact of yoga is more evident on them (Robertson et al., 2007).

In respect of subscale 'beliefs about alternatives to aggression' yoga group showed significant change, 71.82 per cent over all, 49.42 per cent for males, and 93.68 per cent for females. These changes are quite substantial. Streeter et al (2010) say practicing yoga for

once or twice a week may not yield significant results. Longer duration of practices might convey higher levels of changes say Deshpande et al (2008). On similar lines, *Sage Patañjali (Patañjali yoga sūtras 1.14)* says,

स तु धीर्घकाल नैरन्तर्य सत्कारासेवितो दृढभूमिः

sa tu dhīrghakāla nairantarya satkārasevito dṛḍhabhūmiḥ || Patañjali yoga sūtras || 1.14||

To get one's practice firmly grounded (and to get palpable results), one has to practice yoga for a long time, continuously, with earnest devotion (Adidevananda, 1998).

Thus, the prolonged practice would give more conspicuous and evident/tangible results. In the present study, the practice of yoga is for four weeks, which is considered long and intense, and benefits of yoga are most evidently pronounced. Further, the sample size is an important criterion. When yoga is practiced in larger groups, for longer periods, the benefits are more clearly evident and noticeable (Haden et al., 2014). This could be the reason for the significant improvement in adolescents' beliefs in the use of non-violent strategies in the yoga group (n = 76).