Applied Psychiatry

RESEARCH ARTICLE

Mindfulness-Based Cognitive Therapy: Efficiency in Enhancing Resilience and Well-being of Military Children

Y K Nagle[1]*, A Gowtham[2], Anam Masood[3] and Kalpana Rani[4]

[1]Scientist 'F' DRDO, 33 Services Selection Board, SCC, Bhopal, India
[2]Scientist 'B' DRDO, 33 Services Selection Board, SCC, Bhopal, India
[3]Junior Research Fellow, DRDO, 33 Services Selection Board, SCC, Bhopal, India
[4]Scientist 'G' DRDO, 17 Services Selection Board, SCS, Bengaluru, India

Abstract

The Mindfulness-Based Cognitive Therapy (MBCT) is a well-known intervention programme that has proven to be efficient in management of emotional and psychological problems through active, purposive and non-judgemental awareness of experiences. The present study aims to evaluate relative efficiency of MBCT in improving resilience and well-being of children of deployed military soldiers. The sample of the study comprised of N=88 students (44 males and females each) from Army school of Central India. The age range of participants was 14-17 years. Using non-randomized control group pre-test post-test design, after pre-test, the participants were randomly assigned to two equal groups (44 participants each) comprising of equal number of boys and girls. The Experimental Group (M_{age}=15.14, SD=1.11) received MBCT sessions for 8 weeks while the Control Group (M_{age}=15, SD=.96) in parallel, received weekly Psycho-education sessions. The post-assessment was conducted on n=38 Experimental group and n=35 Control group participants respectively. Post-test results showed a greater improvement in resilience and well-being of Experimental group participants as compared to the Control group. The improvement was observed to be specific to those participants with initial pre-test scores falling below 75th percentile. The magnitude of this effect was found to be significant. The findings support that MBCT is effective in improving stress tolerance and coping and can lead to an improved overall functioning of military children. The findings can prove to be helpful for effective management of academic and non-academic stress and enhancement of the quality of remedial programmes.

Keywords: Stress, MBCT, Students, Military, Well-being

Introduction

The concept of Mindfulness is a gift from the east to the rest of the world especially Buddhist teaching. The popularity of mindfulness –based psychotherapies is ever growing though the researchers are yet to define exactly what mindfulness is and how to measure it. Kabat-Zinn (1994) defined mindfulness as "paying attention in a particular way: on purpose, in the present moment and non-judgmentally" [1]. Some of the components of mindfulness include sustained attention, switching, elaborative processing or non-directed attention [2]. Mindfulness based therapies are effective in handling symptoms like anxiety, stress and depressive symptoms in adult population [3], however, their effectiveness in children is being studied by researchers.

Mindfulness-based Cognitive Therapy for Children (MBCT-C)

As a part of a study, a manualized program was developed by the authors to deal with the emotional regulation issues of children. They adapted concepts and applied techniques from Buddhism, integrated along with cognitive therapy techniques, and developed an age appropriate, manualized group psychotherapeutic technique for children: Mindfulness based Cognitive Therapy for Children (MBCT-C). It is developmentally appropriate, 12 week intervention program for the group. It aims at teaching mindful techniques such as self-management of attention, promotes decentering, increasing emotional self-regulation and developing social emotional resiliency. After participating in 12 weeks of MBCT-C, clinic referred children displayed significantly fewer attention problems than were reported at the beginning of the program. These improvements were maintained at the three month follow-up. Results showed that MBCT-C might have some attention and behavioral benefits for children with Attention Deficit Hyperactivity Disorder [4].

Mindfulness interventions can contribute directly to the development of cognitive, performance skills and executive function. Research suggests that the adolescents who are mindful, either through their character or through their learning, tend to experience greater well-being, and that being more mindful tends to accompany more positive emotion, greater popularity and having more friends, and less negative

***Correspondence to:** Y K Nagle, Scientist 'F' DRDO, 33 Services Selection Board, SCC, Bhopal, India, E-mail: yknagle[AT]gmail[DOT]com

Received: Oct 28, 2020; **Accepted:** Oct 30, 2020; **Published:** Oct 31, 2020

Reviewed by: Malakeh M Z

emotion and anxiety. For some school children, anxiety seems to be an issue. Some stress is acceptable when it comes to performance in studies, however too much anxiety interferes with a child's ability to study and make academic progress. Mindfulness based interventions aim to enhance attention and minimize chronic harsh self-judgments.

Teaching mindfulness techniques to all children and adolescents creates the potentiality for greater self-awareness, improved impulse control, and decreased emotional reactivity to challenging events [5]. The main objective of MBCT-C is to help children approach their lives in a new way by focusing on the present moment and developing a different relationship to distressing thoughts and emotions. Engagement in mindfulness practices may gradually interrupt problematic reactions, increase the opportunities to respond with greater awareness, and foster appropriate choices to respond (or not respond) to events [6][7]. Enhanced awareness and mindful attention can then strengthen children's capacity to tolerate negative thoughts, accept strong emotions, manage difficult situations more efficiently, and develop emotional resiliency [4].

A systematic review and meta-analysis to summarize data available on the effects of mindfulness based trainings in school setting was carried out [8]. Twenty four studies were located that report remarkably similar effect sizes using pre-post design with g=0.41. The effects are strongest in cognitive domains (g=0.80) and medium effect sizes for resilience and stress and coping.

Personality determinants

In the last 10 years, the HEXACO model of personality structure enlightened interesting results that helped in understanding phenomena beyond the Five Factor Model [9][10][11]. In fact, HEXACO model is based on the same lexical and cross cultural studies from which originated the Five Factor model, but it is composed of six dimensions instead of five [12]: Honesty/Humility, Emotionality, Extroversion, Agreeableness, Conscientiousness, and Openness to experience. The most important change is related to the introduction of a sixth factor, named Honesty/Humility. People with high Honesty/Humility are inclined to be sincere, fair, and unassuming. Conversely, people with low scores have a strong sense of self-importance and are inclined to flatter others and break the rules in order to get what they want.

A recent review [13] shed light on how Honesty/Humility dimension better predicts different variables compared to the Five Factor Model. These findings are consistent using both self-report and observer report methods. Other differences between the Five Factor Model and the HEXACO model are related to Agreeableness and Emotionality factors [14].

In the HEXACO model, Emotionality describes a tendency to vulnerability, sentimentality and fearfulness vs. a tendency to fearlessness, detachment and toughness. Emotionality is similar to Neuroticism in the Big Five Factor Model, except for being less pejorative and for not describing individuals high on this dimension through ill- temper related terms. Agreeableness factor assesses a tendency to be cooperative, patient and lenient vs. a tendency to be ill- tempered, irritable and resentful. Thus, the Agreeableness in the HEXACO model is somewhat different from Agreeableness in the Big Five Factor Model since the latter excludes ill- temper related terms. The remaining factors, Extraversion, Conscientiousness and Openness to experience, are similar in both models. In this study, we are going to explore whether any of these personality traits have significant relationship with mindfulness skills and training.

Resilience

As Masten and Powell (2003) write: "Resilience refers to patterns of positive adaptation in the context of significant risk or adversity". Resilience is not an individual trait but related to the vulnerability and the protective factors at play in a child's environment [15]. While the focus of measurement has still remained the child and his or her developmental outcomes, there is among resilience researchers recognition that development is dependent on the social determinants of health surrounding a child. Another argument calls for understanding resilience as a quality of the environment as much as the individual [16].

Resilience is a concept that is viewed as a continuum of adaptation or success [17][18]. The roots of resilience are found in two bodies of literature: the psychological aspects of coping and the physiological aspects of stress [18]. Researchers argue that the concept of resilience may be a set of traits [19], an outcome [20], or a process [20]. Resilience is most often considered a personality characteristic that moderates the negative effects of stress and promotes adaptation. Resilience is further defined as the ability to successfully cope with change or misfortune [21]. Research has found that the stresses military children face, and the contexts in which they face them may sometimes be unique in nature. It could be military deployments of their parents that lead to separation or travelling to a novel and risky zones. The families also get subjected to stress and burn-outs. Resilience helps in accepting the setbacks and maintains effective social relationship with peers and neighbourhood [22]. Resilience emerged as one of the main contributing factor to the overall well-being of children and adolescents in school setup [23].

Multi-dimensional social support

Perceived Social Support (PSS) from family, peers, and significant others has been recognized as a protective factor for children and adolescents. One study found that among the various sources of PSS, both boys and girls were oriented towards family more than that of friends and others for support and nurturance [24]. Social support and well-being are also interlinked. Higher the social support, better the overall well-being of the child/adolescent. In a broad sense, social support is defined as the set of human and material resource available to an individual to help them overcome a crisis situation and cope with stress [25]. These resources can be real or

only perceived and are based on two types of social support: structural social support which has to do with the closest quantitative resources (i.e., family and friends), and qualitative social support, whose purpose is to help the individual in their performance (i.e., work team, teachers, and counsellors) [26] [27]. A study conducted to establish the relationship of social support with life satisfaction and depression in Morroccan adolescents signified that well-being is promoted by relations with other relevant people. This well-being implies a higher life satisfaction and lower level of depression [28].

Psychological well-being

Well-being is an important facet of human experience, with influence upon other aspects of human life. Happy persons, for example, are successful across multiple life domains, including marriage, friendship, income, academic and job performance, and health ''not only because success makes people happy, but also because positive affect engenders success''. When people tend to be chronically happy, they have positive attitudes to life and the world, they are more sensitive to reward cues in their environment and are more likely to approach, rather than avoid, rewarding situations [29]. Personality is one of the important predictors of well-being. There is also some evidence of a genetic link between personality and well-being [30]. From the HEXACO, Extroversion was the single strongest correlate of psychological well-being [31].

The emergence of positive psychology has led to increase in well-being research which has produced two theoretical approaches: hedonic and eudaimonic. The hedonic view reflects the notion of well-being as an outcome, consisting of an internal state of pleasure or happiness and focuses on subjective well-being [32][33][34]. From this perspective, well-being is defined in terms of experiencing high levels of positive affect, low levels of negative affect, and a high degree of satisfaction with life [32]. The eudaimonic view on the other hand focuses on well-being more than just happiness. From this view, well-being is not an outcome or final state but a process of fulfilling human potentials [34]. Children and adolescents having better sense of psychological well-being have shown reduction in risk taking behaviour, lowered school refusal, less morality based problems, increased community involvement, academic performance, physical health and adjustment with peers [35].

Military children and their well-being

Children in military families have different childhood experiences compared to civilian peers, including a parent in employment and a stable familial income, frequent relocations, indirect exposure to and awareness of conflict, and extended separation from parents or siblings due to deployment. A systematic review concluded that there is little difference between the military and non-military children expect those with deployed parents and older military connected children have higher risk of substance use and externalising behaviour [36]. The term Military Family Syndrome came into existence after Vietnam War to describe the psychosocial problems of children of deployed parents. Another meta-analytic review posited that deployment of parents created a lot of stress and psychopathological issues to children and adolescents belonging to military families [37]. Children's academic and school functioning along with their relationship with peers may also get affected due to relocation of families with respect to transfers every 2-3 years [38].

One of the most common aspects of military life is frequent relocations. These relocations maybe accompanied or unaccompanied by families based on the type of mission. Typically, with relocation once in every 2-4 years, children had to undergo transitions in schools up to 9 times by the age of 18 years [39]. This leads to increased psychiatric hospitalizations and visit to emergency department. Families move away from extended support the military families been referred to as surrogate family that provides support network [40].

The existing literature mainly focuses on problematic children or children and adolescents showing symptoms such as cognitive deficits, stress, and anxiety etc. for mindfulness based training. The need for inclusion of other typically functioning children is also felt. Studies focussing only on cognitive performances and stress have been covered so far in the existing literature. Improvement/enhancement of qualities like resilience and well-being rather than symptom alleviation will be the main focus of this study.

Aim and objectives of the study

The current study aimed to establish the following aims and objectives:

a) To establish the efficacy of Mindfulness-Based Cognitive Therapy (MBCT) in enhancement of resilience and psychological well-being of children and adolescents belonging to army school

b) To understand the mediating role of the personality determinants and social support of children and adolescents from army schools in their resilience and well-being.

Research hypotheses

In view of the previously discussed aim and objectives, following hypotheses are formed.

H_1. Experimental group would score higher when compared to control group in the measure of resilience

H_2. Experimental group would score higher when compared to control group in all the dimensions of Psychological well-being.

H_3. There will be a significant improvement in resilience and well-being post intervention in experimental group as compared to pre intervention

H_4. There will be no significant difference in resilience and well-being post intervention in control group as compared to pre intervention

Materials and Methods

Research design

For the present study, due to contextual non-feasibility of randomization, a quasi-experimental design was adopted. The researchers used a non-randomized control group pre-test post-test design where after pre-test, the experimental group received treatment measure, followed by post test while the non-equivalent control group did not receive any treatment. Multiple variables were used in the study. The independent variable in the study was Mindfulness-based Cognitive Therapy (MBCT) whereas the dependent variables were resilience and psychological well-being. In addition, two mediating or moderator variables have also been used for assessment of findings i.e. Determinants of personality (HEXACO) and Multi-dimensional social support. The moderator variables were used for one time assessment i.e. before the experiment.

Participants:

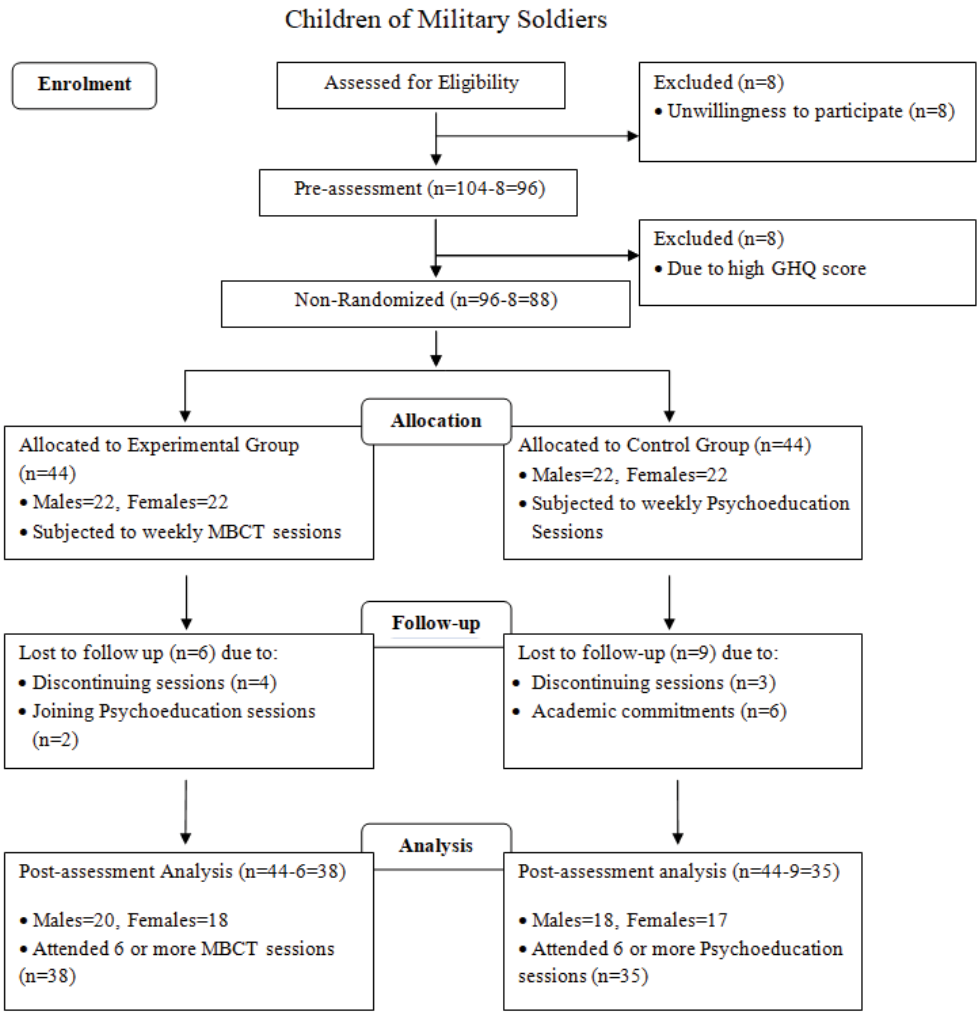
The sample of the study comprised of N=88 students (44 males and females each) from Army school of Central India. The age range of participants was 14-17 years. Using non-randomized control group pre-test post-test design, after pre-test, the participants were randomly assigned to two equal groups (44 participants each) comprising of equal number of boys and girls. A CONSORT diagram is given in figure 1 to elaborate participant flow

There were 6 drop-outs in the experimental group and 9 drop-outs in the control group for post-assessment analysis stage. The final sample comprised of n=38 experimental group participants (M_{age} = 15; SD = ±0.96) and n=35 control group participants (M_{age} = 14.9; SD = ±1.19).

Measures

Demographic questionnaire: Researcher prepared demographic questionnaire was used to collect personal and socio-demographic details of the participants

Connor-Davidson Resilience Scale (CD-RISC): is a widely used tool to measure resilience. It contains 25 items which are rated on a five point Likert scale and ranging from 0 (Not true at all) to 4 (True nearly all the time). Possible scores thus range from 0 to 100. Connor and Davidson [41] found that these items correspond to five factors. They are competence,



(Figure 1): Flow of participants in the study; GHQ=General Health Questionnaire; All the participants who scored above 4 on GHQ in pre-assessment were excluded from the study.

perceived benefits of stress, positive attitude to change and secure relationships, perceived control and Spirituality. The scale has good reliability and validity scores. Cronbach's α for the full scale is 0.89 for the whole group and item-total correlations ranged from 0.30 to 0.70. The scores are highly positively correlated with Kobasa Hardiness Measure in psychiatric out-patients (r=0.83, P<.0001)

Ryff's Psychological well-being: developed by Ryff & Keyes [42] consists of 54 items, measuring six dimensions of psychological well-being i.e. self-acceptance, positive relations with others, autonomy, environmental mastery, purpose in life and personal growth. Each dimensional scale consists of 9 items. Out of 54 items, 26 items were positively worded and 28 items were negatively worded. Items are scored on a 6-point rating scale ranging from strongly agreed to strongly disagree. It has an excellent internal consistency (α = 0.92) [43].

HEXACO-PI: developed by Ashton and Lee [44] comprised of 60 items measuring six dimensions of personality honesty-humility, emotionality, extraversion, agreeableness, consciousness and openness to experience. In the 60 items form, each personality facet is measured with 4 personality items on a 5-point Likert scale. The total HEXACO scores are calculated as sums of ratings on associated items divided by number of items per scale. The Cronbach's alpha reliability estimates of the 60 item form of HEXACO-PI-(R) obtained in a study are αH=0.84; αE=0.83; αX=0.82; αA=0.82; αC= 0.78; αO=0.84 [45].

Multi-dimensional Scale of Perceived Social Support (MSPSS): developed as a brief self-report measure of subjectively assessed social support in which 12-item ratings were made on a 7-point Likert type scale ranging from strongly disagree (1) to very strongly agree (7). The 12-item MSPSS was designed to measure the perceived adequacy of support from the following three sources: family, friends and significant others [46]. The coefficient alphas for the subscales and scale as a whole ranged from 0.85 to 0.91 indicating good internal reliability [47].

Intervention Program

The intervention program consisted of 8 sessions weekly in total with each session focussing on different rationale and outline [48]. It is explained here as follows:

Session 1: *Awareness and Automatic pilot:* Mindfulness starts when we recognize the tendency to be on automatic pilot, Commitment to learn how to step out of it and become aware of each moment, Practice it purposefully moving attention around the body shows how difficult/easy this can be.

Session 2: *Living in Our Heads:* Further focus on the body begins to show more clearly the chatter of the mind, this chatter tends to control our reactions to everyday events, Situation + interpretation = Emotion, Categories of experience vs. a description of the bare sensations

Session 3: *Gathering the Scattered Mind:* With greater awareness of how the mind can often be busy and scattered, Taking awareness intentionally to the breath offers the possibility of being more focussed and gathered, Mindful movement: Stretching/ Walking

Session 4: *Recognising the Territory of Aversion:* The mind is most scattered when it tries to cling to some things and avoid/ escape others, Mindfulness offers a way of staying present by giving another place from which to view things, to help take a wider perspective and relate differently to experience and Getting to know the territory of depression

Session 5: *Allowing/Letting Be:* Relating differently involves bringing to experience a sense of allowing it to be without judging or trying to make it different and such an attitude of acceptance is a major part of taking care of oneself and seeing more clearly hat, if anything needs to change

Session 6: *Thoughts are not Facts:* Negative moods and thoughts that accompany them to restrict our ability to relate differently to experience, it is liberating to realize that our thoughts are merely thoughts, recognizing the same pattern of recurring thoughts can help you dis-identify from your thoughts without resorting to disputation.

Session-7: *How can I best take care of Myself?:* There are specific things that can be done when depression threatens, Take a breathing space first and then decide what action if any to take, Each person has their own unique warning signs of relapse, Participants in the group can help each other in making plans for how best to respond to the signs.

Session-8: *Maintaining and extending new Learning:* Maintaining balance in life is helped by regular mindfulness practice and Good intentions can be strengthened through links to a positive reason for taking care of oneself.

Keeping this outline, mindfulness exercises were modified to target children and adolescents as they would find it difficult to comprehend the original mindfulness exercise which is slightly complex for their age group and level of cognitive functioning.

Psychoeducation Sessions for control group:

The following 8 sessions represent the Psychoeducational program held with the control group children and adolescents.

Session-1: *Awareness on Psychological health:* Providing mental health awareness and importance of prevention from symptoms/mental disorders, Tips on taking care of psychological health, Exercises include communicating frequently, journaling, expression through art and finding anchors

Session-2: *Stress Management:* The session involves defining of stress, identification of stressors, symptoms including mental, social, physical and importance of seeking psychological help, Suggestions include relaxation techniques, acquiring social support, lifestyle changes and playing games

Session-3: *Anger Management:* Defining anger and its triggers in day to day life, Signs: when it turns unhealthy? and alternative behaviour practice, Management through relaxation with counting, cognitive restructuring, problem solving, changing environment, communication and humor.

Session-4: *Interaction with peers:* The components involve understanding the reciprocity, development of friendship, seeking out for help and support and bullying, Participation in group activities and games, Pro-social behaviour, clear communication and reporting to authorities in case of fights for their intervention

Session-5: *Coping Mechanisms:* Topics included, what is coping? Interviewing with situations, effective and ineffective mechanisms for stress, anxiety etc., and Suggested activities are reading a book, playing a game, doing yoga and learning positive self-talk

Session-6: *Time Management:* Scheduling personal goals, creating mental space for efficiency, importance of relaxation, elements of time management, Creating priority matrix and practicing time-keeping for activities to be done eg. Homework

Session-7: *Prevention of Substance Abuse:* Personal and professional life effects of substances, protective factors, identifying risk factors in peers, awareness on co-occurrence of substance use and mental disorder, Healthy lifestyle habits and participation in awareness creation programs conducted in schools, NGO's and show willingness to fight against substance abuse.

Session-8: *Anxiety and Depression:* Definition and meaning, symptoms and causes, difference between general worry and anxiety, resilience as a coping mechanism, cognitive model, mental health care, supportive strategies, coping strategies, Summing up and take home activities.

Statistical analyses

For the purpose of analysis of the data, it has been accumulated and arranged in a data sheet. SPSS v.22.0 has been used for the purpose of analysis. The inferential and descriptive statistics have been applied first on the data and normalcy of distribution of the data being established by measures of kurtosis and skewness. To test the hypotheses set in the study, measures of one-way ANOVA is used to determine whether there is any statistically significant difference between the control group and the experimental group. With regard to improvement in scores on variables from baseline assessment, measure of Wilcoxon Signed rank test was applied to the experimental group and control group.

Results

From the table 1, it is seen that M_{Age}=15 years for the experimental group and M_{Age}=14.9 years for the control group which indicates that the samples are equally distributed with respect to the age. MExp=3.09 of GHQ is slightly higher than that of Mcon=2.50. Considering the rule of thumb for skewness (-1 to +1) and Kurtosis (-2 to +2) all the distributions met the criteria of normality.

From table 2, it is seen that the sample size is 44 for both experimental and control groups. It is also evident that the Mean scores of experimental group and control group on most of the parameters are almost similar prior to the intervention program with equality of sample distribution also getting established.

From table 3, there is a marked difference in the mean scores between experimental and control groups. For example, in RPWB total score, M_{exp}=228.63 and M_{Cont}=197.66 and for Resilience, M_{Exp}= 72.28 and M_{Cont}= 61.42, there seem to be significant difference in mean value post intervention program. However, this should be correlated with further statistical analysis.

The table 4 shows the impact of mindfulness training on the experimental group as compared to the control group with respect to the outcome measures i.e. Resilience and well-being dimensions during post-intervention stage. From the table above, it is observed that except for 'Autonomy' and 'Environmental mastery', all the other dimensions of well-being is showing statistically significant differences between the experimental and the control groups. The reason could be that mindfulness has lesser amount of significance in improving these dimensions of well-being in this particular age group and military background.

From table 5, it is seen that in the experimental group, all the dimensions except for 'Autonomy' and 'Environmental mastery' (Z = -.638 and -1.355) are showing statistically significant difference in the mean value between the experimental pre and post intervention stages. The mean value of post intervention is higher than that of pre intervention which showcases the effectiveness of mindfulness training in enhancing resilience and well-being.

From the table 6, it is evident that the control group has not seen any significant change while the experimental group underwent the mindfulness intervention program. Only the environmental mastery dimension has shown significant difference because of the drop in sample size resulting in lowering of mean value in the post intervention stage.

Table 1: Age and GHQ of samples

	Group	N	Range		Mean	S.D	Skewness		Kurtosis	
			Minimum	Maximum			Stat	S.E	Stat	S.E
AGE	Experimental	44	14.00	17.00	15.000	.964	.489	.357	-.873	.702
	Control	44	14.00	17.00	14.977	1.190	.305	.357	-1.270	.702
GHQ	Experimental	44	.00	9.00	3.090	2.133	.855	.357	.471	.702
	Control	44	.00	9.00	2.500	2.425	1.08	.357	.344	.702

*GHQ- General Health Questionnaire

Table 2: Descriptive statistics of samples during pre-intervention stage

Groups	Variables	N	Mean	S.D	Skewness		Kurtosis	
					Stat.	S. E	Stat.	S. E
Experimental	Resilience	44	60.84	4.323	-.536	.357	.012	.702
	Auto	44	30.20	5.908	.277	.357	-.256	.702
	E.M	44	31.31	5.810	-.060	.357	-.523	.702
	P.G	44	35.18	5.954	.237	.357	-.380	.702
	P.R	44	33.59	5.279	.749	.357	-.161	.702
	P.L	44	34.79	5.065	.638	.357	.010	.702
	S.A	44	33.77	6.076	.172	.357	-.826	.702
	RPWB	44	198.82	22.840	.289	.357	-.447	.702
	S.O	44	20.84	7.386	-.566	.357	-1.374	.702
	FRI	44	19.11	6.066	.024	.357	-1.490	.702
	FAM	44	22.90	5.968	-.910	.357	-.782	.702
	MSPSS	44	62.86	17.318	-.616	.357	-1.068	.702
	H-H	44	28.97	5.064	-.283	.357	-.019	.702
	EMO	44	33.09	4.893	-.189	.357	-.776	.702
	EXTRA	44	33.09	4.355	-.155	.357	-1.076	.702
	AGREE	44	30.72	4.352	-.246	.357	.299	.702
	CONSCI	44	32.11	6.184	.643	.357	-.838	.702
	OPEX	44	31.61	3.966	-.487	.357	.015	.702
Control	Resilience	44	59.95	6.298	.724	.357	.089	.702
	Auto	44	31.13	6.649	.375	.357	-.380	.702
	E.M	44	32.75	5.887	-.069	.357	-.353	.702
	P.G	44	34.68	6.954	.419	.357	-.931	.702
	P.R	44	32.31	5.564	1.016	.357	.621	.702
	P.L	44	33.84	4.964	.809	.357	1.536	.702
	S.A	44	31.11	6.556	.191	.357	-.381	.702
	RPWB	44	195.82	19.040	-.037	.357	-.414	.702
	S.O	44	22.20	3.107	.024	.357	-.887	.702
	FRI	44	22.93	3.208	-.953	.357	1.029	.702
	FAM	44	22.13	3.521	-.627	.357	.274	.702
	MSPSS	44	67.27	6.613	-.561	.357	.122	.702
	H-H	44	33.88	5.516	-.187	.357	-.551	.702
	EMO	44	31.79	4.547	.228	.357	-.348	.702
	EXTRA	44	32.29	4.668	-.216	.357	-.611	.702
	AGREE	44	33.29	4.608	-.191	.357	-.077	.702
	CONSCI	44	30.68	5.259	.075	.357	-.556	.702
	OPEX	44	32.36	5.194	-.062	.357	-.961	.702

Auto= Autonomy, EM= Environmental Mastery, PG- Personal Growth, PR-Positive Relations, PL- Purpose in Life, SA-Self-Acceptance, RPWB- Ryff's Psychological Well-Being, SO- Significant Others, FRI-Friends, FAM- Family, MSPSS- Multi-Dimensional Scale of Perceived Social Support, H-H-Honesty-Humility, EMO-Emotionality, EXTRA-Extraversion, AGREE-Agreeableness, CONSCI-Conscientiousness, OPEX-Openness to Experience.

Table 3: Descriptive statistics of samples during Post-intervention stage

Groups	Variables	N	Mean	S.D	Skewness		Kurtosis	
					Stat.	S. E	Stat.	S. E
Experimental	Resilience	38	72.28	3.039	-.169	.383	.461	.750
	Auto	38	27.84	6.296	.671	.383	.203	.750
	E.M	38	30.86	6.722	-.129	.383	-.739	.750
	P.G	38	42.13	2.732	-1.043	.383	2.228	.750
	P.R	38	41.78	2.384	-.153	.383	-.227	.750
	P.L	38	43.57	1.570	-.353	.383	-.735	.750
	S.A	38	42.42	2.500	-1.309	.383	2.510	.750
	RPWB	38	228.63	10.935	-.095	.383	-.076	.750
Control	Resilience	35	61.42	6.035	.784	.398	1.638	.778
	Auto	35	33.02	5.617	.026	.398	-.617	.778
	E.M	35	32.11	5.875	.147	.398	-.650	.778
	P.G	35	33.82	5.992	.525	.398	-.221	.778
	P.R	35	32.71	5.355	.588	.398	-.218	.778
	P.L	35	33.00	4.826	.786	.398	1.619	.778
	S.A	35	32.97	6.762	.206	.398	-1.248	.778
	RPWB	35	197.66	17.086	-.414	.398	-.648	.778

Table 4: ANOVA between group effects of experimental and control groups post intervention

Dimensions	Effects	Sum of Squares	df	Mean Square	F	Sig.
Autonomy	Between Groups	35.710	1	35.710	1.813	.182
	Within Groups	1398.400	71	19.696		
	Total	1434.110	72			
Environmental Mastery	Between Groups	1.313	1	1.313	.047	.828
	Within Groups	1964.742	71	27.672		
	Total	1966.055	72			
Personal Growth	Between Groups	1317.267	1	1317.267	68.542	.000***
	Within Groups	1364.514	71	19.219		
	Total	2681.781	72			
Positive Relations	Between Groups	1528.992	1	1528.992	96.885	.000***
	Within Groups	1120.487	71	15.782		
	Total	2649.479	72			
Purpose in Life	Between Groups	2116.808	1	2116.808	204.519	.000***
	Within Groups	734.863	71	10.350		
	Total	2851.671	72			
Self Acceptance	Between Groups	1829.597	1	1829.597	88.872	.000***
	Within Groups	1461.663	71	20.587		
	Total	3291.260	72			

****p<.001 level*

Table 5: Comparison between Experimental Group pre- and post intervention (Wilcoxon sign Rank test)

Variable	Time	N	Mean	S.D	Mean Ranks		Sum of Ranks		Z	Sig. (2-Tailed)
					Positive	Negative	Positive	Negative		
Resilience	Pre-int.	44	60.84	4.32	.00	19.00	.00	703.00	-5.306	.000***
	Post-int.	38	72.28	3.03						
Autonomy	Pre-int.	44	30.20	5.90	15.39	12.30	215.50	162.50	-.638	.523
	Post-int.	38	29.00	5.20						
Env. Mastery	Pre-int.	44	31.31	5.81	13.04	10.39	182.50	93.50	-1.355	.175
	Post-int.	38	30.86	6.72						
Personal Growth	Pre-int.	44	35.18	5.95	9.20	21.06	46.00	695.00	-4.710	.000***
	Post-int.	38	42.13	2.73						
Positive Relations	Pre-int.	44	33.59	5.27	4.90	21.71	24.50	716.50	-5.023	.000***
	Post-int.	38	41.78	2.38						
Purpose in Life	Pre-int.	44	34.79	5.06	2.83	20.43	8.50	694.50	-5.178	.000***
	Post-int.	38	43.57	1.57						
Self Acceptance	Pre-int.	44	33.77	6.07	7.00	19.55	21.00	645.00	-4.905	.000***
	Post-int.	38	42.42	2.50						

**p<.05 level*

Discussion

The main aim of the study was to find out whether the mindfulness based intervention program for children from the military background is effective in enhancing their resilience and psychological well-being. Also the study looked upon how the personality factors and perceived social support mediated the effects of the mindfulness intervention. The experimental group was presented with mindfulness based intervention program for 8 weeks whereas the control group participated in weekly psychoeducation classes. The aim was to find what kind of impacts both these programs had on the respective groups in comparison to one another.

Our findings mainly suggest that mindfulness significantly improves resilience, and few dimensions of psychological well-being such as Personal Growth, Positive relations with others, Purpose in Life and Self-Acceptance domains. The awareness and attention aspects of mindfulness seems to be helping in getting to know oneself better with a thirst for knowledge acquirement, maintaining a smooth relationship with others, having a sense of direction in one's life and acknowledging and accepting multiple parts of oneself. Hence the hypotheses (H_1 and H_2) are proved and accepted in our study.

Similarly, another study showed that mindfulness is negatively associated with adolescents' psychological distress and positively related to general health and life satisfaction [49]. Moreover, another study [50] proposed that mindfulness

Table 6: Control group comparison Pre and Post intervention (Wilcoxon Sign Rank Test)

Variable	Time	N	Mean	S.D	Mean Ranks		Sum of Ranks		Z	Sig. (2-Tailed)
					Positive	Negative	Positive	Negative		
Resilience	Pre-int.	44	59.95	6.29	17.41	16.02	191.50	336.50	-1.360	.174
	Post-int.	35	61.42	6.03						
Autonomy	Pre-int.	44	30.59	5.73	17.69	13.82	230.00	235.00	-.052	.959
	Post-int.	35	30.40	3.41						
Env. Mastery	Pre-int.	44	32.29	5.24	18.26	15.91	420.00	175.00	-2.098	.036*
	Post-int.	35	30.60	2.93						
Personal Growth	Pre-int.	44	34.68	6.95	19.29	15.71	328.00	267.00	-.522	.602
	Post-int.	35	33.62	5.65						
Positive Relations	Pre-int.	44	32.31	5.56	16.24	19.67	276.00	354.00	-.639	.523
	Post-int.	35	32.62	5.17						
Purpose in Life	Pre-int.	44	33.54	4.29	16.08	15.88	289.50	206.50	-.815	.415
	Post-int.	35	32.80	4.35						
Self Acceptance	Pre-int.	44	31.11	6.55	13.83	20.39	207.50	387.50	-1.541	.123
	Post-int.	35	32.40	6.01						

**P<.05 level*

could improve self-acceptance by promoting the ability and willingness to maintain authenticity of self, since individuals with high levels of mindfulness pay more attention to the present feeling of the self and thus could avoid mindless pretending behaviour. In other words, being mindful could help individuals to authentically accept themselves without thinking excessively about the evaluations of others.

On the other hand, the results of experimental group show that mindfulness intervention has played a significant role in enhancing the resilience and psychological well-being. The key correlates of childhood resilience include effective parenting, self-regulation and mastery-motivation skills, making meaning of one's experience and hope/optimism. We are not completely assured of which aspect of resilience mindfulness enhances however its impact on the overall resilience enhancement is seen significant.

Well conducted mindfulness interventions have been shown to be capable of addressing the problems of the young people who take part, and improve their wellbeing, reduce worries, anxiety, distress, reactivity and bad behaviour, improve sleep, self-esteem, and bring about greater calmness, relaxation, and self--regulation and awareness. Adolescents who are mindful, either through temperament or training, tend to experience greater well-being; and mindfulness correlates positively with positive emotion, popularity and friendship- extensiveness, and negatively with negative emotion and anxiety [51].

Another study [52] reported the outcomes of Mindfulness in School project's pilot mindfulness programme with 14-15 year old male students. Conducted in two English independent boys' schools, a four-week mindfulness training produced significant effects on mindfulness, ego-resilience or well-being among students who regularly did 10 minutes of home practice a day and smaller changes among those who did not.

On the contrary, the control group which underwent Psychoeducation sessions did not show significant changes in resilience and well-being measures during post intervention stages as compared to pre-intervention stage. This is indicative of the ineffectiveness of psycho-education model as compared to the mindfulness intervention program. Hence the hypotheses (H_3 and H_4) are proved in the current study. There are studies that signify the importance of Psychoeducational models in enhancing the Psychological well-being. One such study [53] focuses on the elements of educational psychology as an intervention in practically supporting the mental health of the children and their psychological well-being outside the classroom.

In this study, the HEXACO model of personality and Multi-dimensional Social Support were also measured in the pre-intervention stage for both experimental group and the control group. They were mainly measured to understand the mediating roles played by these factors on determining the resilience and psychological well-being of the children in the study. Honesty-Humility and Agreeableness dimensions of HEXACO were significantly higher in the control group than that of experimental group. On the other hand when it comes to social support, there seems to be a significant difference in the domain of friendship. This signifies that both the HEXACO and social support had a minimalistic role in enhancing the resilience and Psychological well-being. It also means that these variables have less impact on the observed relationship between the independent variable and a dependent variable i.e. mindfulness, resilience and Psychological well-being.

On a similar note, the links between HEXACO and Psychological well-being were studied over 3 different studies. The HEXACO did not have the advantage over the Big Five in predicting the subjective well-being (SWB). From the HEXACO, Extraversion was the single strongest correlate of well-being whereas Honesty-Humility was unrelated to SWB but it was related to higher levels of Psychological well-being with the Honesty sub-factor driving the relationship [31]. A meta-analysis explored the association between social support and well-being in children and adolescents. Two hundred and forty six studies were examined and the results indicated a positive but small association between social support and well-being. Additionally, moderator analyses indicated that social support was strongly associated to self-

concept and perceived support was more strongly associated with well-being, support from teachers and school personnel was more strongly associated with well-being and the association between social support and well-being increased with age [54]. Another study [55] provided meaningful insight into the role of MBCT in improving vigilance, information processing and cognitive functioning.

Conclusion

The findings of the study provide meaningful information on the role of Mindfulness intervention in enhancing resilience and psychological well-being of children and adolescents from the military background. Mindfulness program played a significant role in improving key aspects of well-being such as purpose in life, self-acceptance, personal growth and positive relations with others. Despite having certain limitations such as generalisability of results, the study establishes the efficacy of Mindfulness interventions in enhancing well-being and resilience amongst children and adolescents. The study has lot of practical implications such as regular practice of mindfulness exercises in children may enhance their psychological health and in prevention of disturbances such as anxiety, depression etc.,.

Limitations

The present study was aimed at establishing the efficacy of mindfulness intervention in children and adolescents. It is only limited to studying resilience and psychological well-being as an outcome measure. The mediating variables such as HEXACO and social support did not have significant impact on the outcome of the intervention. A larger sample size would have widened the scope of generalisability of the results.

Directions for future research

A comparative study between mindfulness interventions with the other conventional modalities such as CBT, REBT could be conducted in the same population as they are identified as more vulnerable to psychological disturbances. The cognitive aspects of mindfulness need to be explored further than what has been studied in the present study. It could be simplified as per the requirement of the age group of children and adolescents and then studied. This research could also be extended to understand the gender differences in the outcome measures i.e. resilience and psychological well-being after undergoing the same intervention program. The measures of HEXACO and perceived social support could be used in a more robust way in establishing their mediational role.

Acknowledgements

The authors would like to extend their warm gratitude to Dr. K. Ramachandran, Director, Defence Institute of Psychological Research, DRDO, Delhi.

Ethics approval

The study was approved by the Ethics Committee of the Defence Institute of Psychological Research, DRDO, Delhi.

References

1. Kabat-Zinn J (2003) Mindfulness-based interventions in context: past, present, and future. *Clinical psychology: Science and practice* 10:144-56. [View Article]
2. Anderson ND, Lau MA, Segal ZV, Bishop SR (2007) Mindfulness-based stress reduction and attentional control. *Clinical Psychology & Psychotherapy: An International Journal of Theory & Practice* 14:449-63. [View Article]
3. Baer RA (2006) Mindfulness training as a clinical intervention: A conceptual and empirical review. *Clinical psychology: Science and practice* 10:125-43. [View Article]
4. Semple RJ, Lee J, Rosa D, Miller LF (2010) A randomized trial of mindfulness-based cognitive therapy for children: Promoting mindful attention to enhance social-emotional resiliency in children. *Journal of child and family studies* 19:218-29. [View Article]
5. Black DS, Sussman S, Johnson CA, Milam J (2012) Testing the indirect effect of trait mindfulness on adolescent cigarette smoking through negative affect and perceived stress mediators. *Journal of substance use* 17:417-29. [View Article]
6. Tan L, Martin G (2013) Taming the adolescent mind: Preliminary report of a mindfulness-based psychological intervention for adolescents with clinical heterogeneous mental health diagnoses. *Clinical Child Psychology and Psychiatry* 18:300-12. [View Article]
7. van de Weijer-Bergsma E, Langenberg G, Brandsma R, Oort FJ, Bögels SM (2014) The effectiveness of a school-based mindfulness training as a program to prevent stress in elementary school children. *Mindfulness* 5:238-48. [View Article]
8. Zenner C, Herrnleben-Kurz S, Walach H (2014) Mindfulness-based interventions in schools—a systematic review and meta-analysis. *Frontiers in psychology* 5:603. [View Article]
9. Lee K, Ashton MC (2004) Psychometric properties of the HEXACO personality inventory. *Multivariate behavioral research* 39:329-58. [View Article]
10. Ashton MC, Lee K (2007) Empirical, theoretical, and practical advantages of the HEXACO model of personality structure. *Personality and social psychology review* 11:150-66. [View Article]
11. Ashton MC, Lee K, De Vries RE (2014) The HEXACO Honesty-Humility, Agreeableness, and Emotionality factors: A review of research and theory. *Personality and Social Psychology Review* 18:139-52. [View Article]
12. Ashton MC, Lee K, de Vries RE, Perugini M, Gnisci A, et al. (2006) The HEXACO model of personality structure and indigenous lexical personality dimensions in Italian, Dutch, and English. *Journal of Research in Personality* 40:851-75. [View Article]
13. Ashton MC, Lee K, De Vries RE (2014) The HEXACO Honesty-Humility, Agreeableness, and Emotionality factors: A review of research and theory. *Personality and Social Psychology Review* 18:139-52. [View Article]
14. Ashton MC, Lee K, Perugini M, Szarota P, De Vries RE, et al. (2004) A six-factor structure of personality-descriptive adjectives: solutions from psycholexical studies in seven languages. *Journal of personality and social psycholog.* 86:356. [View Article]
15. Luthar SS, Cicchetti D, Becker B (2000) The construct of resilience: A critical evaluation and guidelines for future work. *Child development* 71:543-62. [View Article]

16. Seccombe K (2002) "Beating the odds" versus "changing the odds": Poverty, resilience, and family policy. *Journal of Marriage and family* 64:384-94. [View Article]

17. Hunter AJ, Chandler GE (1999) Adolescent resilience. *Image: The Journal of Nursing Scholarship* 31(3):243-7. [View Article]

18. Tusaie K, Dyer J (2004) Resilience: A historical review of the construct. *Holistic nursing practice* 18:3-10. [View Article]

19. Jacelon CS (1997) The trait and process of resilience. *Journal of advanced nursing* 25:123-9. [View Article]

20. Olsson CA, Bond L, Burns JM, Vella-Brodrick DA, Sawyer SM (2003) Adolescent resilience: A concept analysis. *Journal of adolescence* 26:1-1. [View Article]

21. Wagnild GM, Young HM (1993) Development and psychometric. *Journal of nursing measurement* 1:165-7847. [View Article]

22. Jessor R (1991) Risk behavior in adolescence: a psychosocial framework for understanding and action. *Journal of adolescent Health.* [View Article]

23. Sharma N, Nagle YK (2018) Personality and resilience as determinants of psychological well-being among military children. *Defence Life Science Journal* 3:356-62. [View Article]

24. Poudel A, Gurung B, Khanal GP (2020) Perceived social support and psychological wellbeing among Nepalese adolescents: the mediating role of self-esteem. *BMC psychology* 8:1-8. [View Article]

25. Cohen S (2004) Social relationships and health. *American psychologist* 59:676. [View Article]

26. Cobb S (1976) Social support as a moderator of life stress. *Psychosomatic medicine* [View Article]

27. Gottlieb BH (1983) Social support strategies: Guidelines for mental health practice. *SAGE Publications*, Incorporated [View Article]

28. Lopez-Zafra E, Ramos-Álvarez MM, El Ghoudani K, Luque-Reca O, Augusto-Landa JM, et al. (2019) Social support and emotional intelligence as protective resources for well-being in Moroccan adolescents. *Frontiers in psychology* [View Article]

29. Lyubomirsky S, King L, Diener E (2005) The benefits of frequent positive affect: Does happiness lead to success?. *Psychological bulletin* 131:803. [View Article]

30. Weiss A, Bates TC, Luciano M (2008) Happiness is a personal (ity) thing: The genetics of personality and well-being in a representative sample. *Psychological science* 19:205-10. [View Article]

31. Aghababaei N, Arji A (2014) Well-being and the HEXACO model of personality. *Personality and Individual Differences* 56:139-42. [View Article]

32. Ryan RM, Deci EL (2001) On happiness and human potentials: A review of research on hedonic and eudaimonic well-being. *Annual review of psychology* 52:141-66. [View Article]

33. Pavot W, Diener E (2008) The satisfaction with life scale and the emerging construct of life satisfaction. *The journal of positive psychology* 3:137-52. [View Article]

34. Ryan RM, Huta V, Deci EL (2008) Living well: A self-determination theory perspective on eudaimonia. *Journal of happiness studies* 9:139-70. [View Article]

35. Luthar SS, Cicchetti D, Becker B (2000) The construct of resilience: A critical evaluation and guidelines for future work. *Child development* 71:543-62. [View Article]

36. Williamson V, Stevelink SA, Da Silva E, Fear NT (2018) A systematic review of wellbeing in children: a comparison of military and civilian families. *Child and adolescent psychiatry and mental health* 12(1):46. [View Article]

37. Cunitz K, Dölitzsch C, Kösters M, Willmund GD, Zimmermann P, et al. (2019) Parental military deployment as risk factor for children's mental health: a meta-analytical review. *Child and adolescent psychiatry and mental health* 13:26. [View Article]

38. Finkel LB, Kelley ML, Ashby J (2003) Geographic mobility, family, and maternal variables as related to the psychosocial adjustment of military children. *Military medicine* 168:1019-24. [View Article]

39. Rossiter AG, Dumas MA, Wilmoth MC, Patrician PA (2016) "I Serve 2": Meeting the needs of military children in civilian practice. *Nursing outlook* 64:485-90. [View Article]

40. Huebner CR (2019) Committee on Psychosocial Aspects of Child and Family Health. Health and mental health needs of children in US military families. *Pediatrics* 143. [View Article]

41. Connor KM, Davidson JR (2003) Development of a new resilience scale: The Connor-Davidson resilience scale (CD-RISC). *Depression and anxiety* 18:76-82. [View Article]

42. Ryff CD, Keyes CL (1995) The structure of psychological well-being revisited. *Journal of personality and social psychology* 69:719. [View Article]

43. Baer RA, Lykins EL, Peters JR (2012) Mindfulness and self-compassion as predictors of psychological wellbeing in long-term meditators and matched nonmeditators. *The Journal of Positive Psychology* 7:230-8. [View Article]

44. Ashton MC, Lee K (2001) A theoretical basis for the major dimensions of personality. *European Journal of Personality* 15:327-53. [View Article]

45. Ashton MC, Lee K, Visser BA, Pozzebon JA (2008) Phobic tendency within the Five-Factor and HEXACO models of personality structure. *Journal of Research in Personality* 42:734-46. [View Article]

46. Zimet GD, Dahlem NW, Zimet SG, Farley GK (1988) The multidimensional scale of perceived social support. *Journal of personality assessment* 52:30-41. [View Article]

47. Zimet GD, Powell SS, Farley GK, Werkman S, Berkoff KA (1990) Psychometric characteristics of the multidimensional scale of perceived social support. *Journal of personality assessment* 55(3-4):610-7. [View Article]

48. Segal ZV, Williams JM, Teasdale JD (2013) Mindfulness-Based Cognitive Therapy for Depression, 2nd Edn New York. NY: *Guilford Press* [View Article]

49. Ma Y, Fang S (2019) Adolescents' mindfulness and psychological distress: The mediating role of emotion regulation. *Frontiers in psychology* 10:1358. [View Article]

50. Carson SH, Langer EJ (2006) Mindfulness and self-acceptance. *Journal of rational-emotive and cognitive-behavior therapy* 24:29-43. [View Article]

51. Weare K (2012) Evidence for the impact of mindfulness on children and young people. *The Mindfulness in Schools Project in association with Mood Disorders Centre* [View Article]

52. Huppert FA, Johnson DM (2010) A controlled trial of mindfulness training in schools: The importance of practice for an impact on well-being. *The Journal of Positive Psychology* 5:264-74. [View Article]

53. Dawson J, Singh-Dhesi D (2010) Educational psychology working to improve psychological well-being: an example. *Emotional and behavioural difficulties* 15:295-310. [View Article]

54. Chu PS, Saucier DA, Hafner E (2010) Meta-analysis of the relationships between social support and well-being in children and adolescents. *Journal of social and clinical psychology* 29:624-45. [View Article]

55. Nagle YK, Masood A (2020) Mindfulness-Based Cognitive Therapy: Enhancement of Visual Target Detection Ability of the Analyst. European Journal of Education and Applied Psychology 3:03-19. [View Article]

Citation: Nagle YK, Gowtham A, Masood A, Rani K (2020) Mindfulness-Based Cognitive Therapy: Efficiency in Enhancing Resilience and Well-being of Military Children. Appl Psychiatry 1(2): 001-012.