

2.0 LITERARY RESEARCH

2.1 REVIEWS ON PREVIOUS STUDIES

A recent study on ancient literature talks about how a woman as a mother has an important role in child's development (Bharatlaxmi, 2004). In another study, it is emphasised that how a home is an important training ground for character building for children with personal guidance of mother and justification given that how a woman is equally important as a man (Nidhi & Apachu, 2009). It is also reviewed and described that how a family is the unit of society and is the primary and the important learning centre. There is also a description of the concept of son and daughter with respect to the relationship with the family and the society (Deepashree, 2010). Another study describes pregnancy is a very sensitive time with respect to being hyperactive (Unm da), which can be the reason for the physical and mental sickness of a child (Debendra, 2011). In a doctoral thesis, a theoretical model is proposed for development of human potential through the practice of yoga (Khemka, 2012).

Table-1: Summary of previous literary works

Author & Year	Summary	Strength	Limitations
Bharatalaxmi, (2004)	Yoga is very much necessary for women health	Focused on yoga with respect to woman	1.Reviewed from limited literature 2.Should mention as women as a mother have important responsibility for the child development 3.No theoretical model has given
Nidhi & Apachu, (2009)	Home is the important training ground for character building for children with personal guidance of Mother	1.Compare and justify a woman is as important as a man 2.Explained the concept of mother in details	1. No theoretical model is proposed for the experimental work 2. Reviewed on limited literature
Deepashree, (2010)	Family is the unit of society and Family is the primary and important learning center	Explained the concept of son and daughter with respect to relationship with the family and the society	1.No theoretical model is proposed for the experimental work 2. Reviewed on limited literature
Debendra, (2011)	Pregnancy is very sensitive time with respect to being hyperactive(<i>Unm da</i>) of a child	Cause and symptoms of <i>Unm da</i> during pregnancy was described in detail	1.Not much literature on <i>Unm da</i> after post birth 2.Remedy from literature was not described in specific for <i>Unm da</i> 2.No theoretical model has been given
Khemka, (2012)	The study of development of human potential through practice of yoga and assessment of the changes using Psychological and other health variables	Theoretical model proposed for development of human potential	1. Reviewed on limited literature

Exploring the lessons from all the previous works have given emphasis on the role of a woman, mother, son and daughter; however, there is no review of the role of a father or the parents. There is also no literature on the loss of parents or on the concept of “orphan”. Hence the literary research on the concept of ‘orphan’, deprivation due to early parental loss, the problem faced by them and solution according to yoga and spiritual texts, was proposed.

2.2 AIM

To unearth the concept of “orphan” according to ancient yoga and spiritual texts.

2.3 OBJECTIVES

1. To understand the definition of “orphan” and the reason for the same.
2. To find out the deprivations and problems associated with orphans.
3. To unravel methods mentioned in scriptures to overcome the consequences.

2.4 METHODOLOGY OF THE STUDY

1. The first step is to search the Sanskrit words synonymous and related to an orphan, parenting, a consequence of loss of a parent and its influence in child development in Sanskrit and English dictionaries.
2. The second step is to find all related *lokas* from the following literature.
 - a. *Sh utis*: 10 major *Upanisads*.
 - b. *Sm tis*: *Manu sm ti*, *Yajñavalka sm ti*, *Bhagavatgit* .
 - c. *Prakara a granthas*: *Brahma utras* and *Viveka chud mani*.
 - d. *Itih sas*: *R m ya a* and *Mah bh rata*.
 - e. *yurveda* literature: *Caraka samhita* , *Sush uta samhita* , *M dhavanid na*.
 - f. Yoga texts: *P tanjali Yoga Sutra*, *Ha ha Yoga Pradipik* , *Yoga V shisthya*, *Dheran a Sa hit* , *iva Sa hit* .
3. The third and final step is compiling and summarizing the contents of the found *lokas* into a model under the guidance of an expert having Vedic Knowledge.

2.5 LITERARY RESEARCH OUTCOMES

2.5.1 Definitions of ‘orphan’

An orphan is known as *An tha* or *M t uhina* (child without a mother) or *Pit uh na* (Child without a father) or *M trupit uh na* (child without both father and mother) according to different English and Sanskrit dictionaries (Ramachandran, 1971; Macdonell, 1924). There are some similar words like *Chhema da* and *Yatima* used for the same (Williams, 1976).

2.5.2 Problems associated with orphan due to parental loss

In old days, one of the major reasons for being an orphan or abandoned was war. How a war can destroy the age-old traditions and what all affects it has, we can get from the story how *Arjuna* was scared of thinking of the consequences of *Mah bh rata* war.

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३ । ४ ० -४ ३
Kulak aye pra asyati kuladharm san tan |
Dharme na e lula k tsnamadharmo'bhibhavatyuta ||
Adharm bhibhav tk a pradu yanti kulastriya |
Str u du su v r oya j yate var asa kara ||

- *Bhagavat G t 1.40-41*

“With the destruction of a family, its age-long traditions disappear and with the absence of family traditions impiety take hold of the entire family. When impiety prevails, Oh, Krishna the women of a family become perverse with their degradation. Oh, *V r oya* a hybrid mixture of caste results” (Ramsukhdas, 2012).

In war, there is the destruction of age-long traditions. As they are cut off from the family lineage, the pious traditions and pious conducts perish; people lose their virtues and righteousness. The source of earning gets affected. When the people are killed in a war, no one is left behind to take care the offspring or teach them good conduct and virtuous behaviour. The means of their family also have a downfall. There are also chances that offspring born of an intermixture of caste are not religious minded and do not possess the righteousness and they have no regards for their ancestors.

Orphans are deprived of parental affection, protection, property and sense of security which has a severe impact on their physical, mental and social development. Loss of parents can be a profound stressor and further how stress can lead to many psychosomatic ailments is quoted below.

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II

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*Sa t p t bhra yate rupa sa t pat bhra yate balam |
Sa t pat bhra yate jñ na sa t pat vy dhim cchati ||*

-Mah bh rata, Udyog Prva 36.44

“Mental pain destroys the facial expression, strength, knowledge and creates diseases”(Dutt, 2001).

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८ ३ । ३ ३

dhayo vy dha caiva dvaya du khasya k ra a |

-Yoga V i hya 81.12

“Mental afflictions and physical diseases are both the reasons of sufferings”(Bharati, 1998).

- ८३१३०
*Citte vidhurite deha sa k obhamanutyalam/
 Sa k obh ts bhyamuts jya vahanti pra av yava //*
 - *Yoga V ihya 81.30*

“The mind being disturbed by afflictions, the body is disordered also in its functions, as the man that is over taken by anger loses the sight of whatever is present before his eyes” (Bharati, 1998).

2.5.3 Solutions according to ancient scriptures:

2.5.3.1 Role of parents in children’s development according to scriptures

It can be easily understood how the orphans are deprived of, by understanding the role of parents, family and society in every stage of children’s growth and development, as described below. The following *loka* from *Manusm ti* describes the importance of parenting in the education of children.

I
 II
 - ३१३४५
*Up dhy y nda c rya c ry ata Pit /
 Sahastra Tu Pit nm t Gaurave tiricyate //*
 -*Manusm ti 2.145*

“One *charya* is better than ten *Up dhyayas*; a father is greater than hundred *charyas* but a mother is greater than one thousand fathers” (Dutt, 2001).

Thus the role modeling comes in to picture in children’s overall growth. So, how a mother and a

father should be? Let us see in the following *loka* from *Mah bh rata*.

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Pit m t ca sarvasya jagata a vato guru /
-Mah bh rata, nti parva 329.26

“Parents are the permanent teacher of the whole universe” (Dutt, 2001).

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- १४।५२

Yanm t pitarau v ta tanaye kur ta sad
na supratikara m tr pitr ca yatka tam,
Yath akti prad nena sn pan cch danena ca
nitya ca priyav dena tath sa vardhanena ca ॥
-R m ya a 4.52

“What a father and mother always do to their children, by giving everything that they can, by bathing and cleansing and continuous caring of speech and as a result bringing them up-all this that is done by father and mother is not easy for repayment” (Subramaniam, 1990).

The parents are like gardeners to the children. A perfect parent should provide proper encouragement and support for all-round development of the child. A parent is the first and the best teacher of a child throughout. Relationship of a parent to a child is like that of scaffolding to a building. Just as scaffolding is put up to support the structure of the building as it is being built and gradually taken down as the building is able to stand on its own, a perfect parent should provide the necessary support for a child to allow him to safely and productively explore and learn from the environment. As the child matures and develops mastery the scaffolding could be removed or changed gradually to allow the child to become more independent. If required, the support could be re-instated.

2.5.3.2 Importance of family system and joint family system in children's growth

Family value is the basis for our sense of right and wrong, good or bad. It is something that we want to keep as a standard for judging ourselves and the rest of the world. It is our values that drive us to act in certain ways to lead a certain lifestyle and to shun certain habits. Each of us has a unique value system actually almost as unique as our fingerprints. Because a value system is not just something that is passed down from parents or learnt through behaviour in schools etc. it is fine-tuned and developed through personal experiences, in combination with the values that our immediate society (the social circle in which we live and the people with whom we interact) lends to us. The new born is considered partially autonomous, in the sense of having specific *gu as*. The very specificity of the *gu as* constellation imposes certain limits on the socialization of the child. The nature of an individual's first relationship, i.e. with his mother, profoundly influences the quality and dynamics of social relations throughout his life. The mother's sensory presence is vital importance for the infant's earliest development experiences and awakenings.

“Joint family” is one of the strongest pillars of our age old heritage. Though India has been invaded by many foreigners, the *San tana Dharma* is still alive and intact as it was long long ago; and for this joint family is one of the main contributors. Joint family helps not only in maintaining the cultural identity of the society/community but also ensures smooth transitioning & continuity of the culture from one generation to next. The customs, traditions, beliefs, values, ideologies are handed over from generation to generation flawlessly. Members are publicly known less with the individual identity and more by family names. Joint family provides a beautiful and unique social security - both material and psychological. Shared responsibilities result in minimal concern over the basics of life, money, food, shelter and clothing. A strong

family unit would promote child development and prevent child destitution (Sonawat, 2001) and individuals with no parents or single parent never felt like ‘orphan’ in earlier society. They were taken care of nicely by joint family.

2.5.3.3 Socio-cultural rituals in children’s all-round growth

Parents perform various rituals like *Sa sk ra* for the sake of their child, with family, relatives and own community. *Sa sk ras* are widely practiced socially sanctioned cultural rituals carried out at the appropriate developmental stages of life, which contribute to promote the developmental of children. There are seventeen *Sa sk ras* in the life span of an individual, of which ten are in the childhood. The first three are *Gharbhadh ra a*, *Pumsavana*, and *Simanatonnoyana*, which are carried out before birth; aim at protecting the fetus, keeping her safe and happy in order to promote the healthy development of the fetus. *Sa sk ras* from *J takarma* to *Vidhy rambha* are performed by the parents for promoting emotional tranquility in the pregnant mother and its relation to healthy development of the child. The *Gurukula* sages were equally concerned about the growth and well-being of the child during its dependency on its parents before moving to a *Gurukula* for higher studies. *Gg hastas* later regularized many *Sa skar as* in which prayers were offered to Gods for its healthy progress and initiation to *Aparavidy* (secular studies) and *Par vidy* (spiritual studies) to become a worthy citizen serving the society while elevating oneself spiritually. Each of these *Sa skar s* have medical, psychological (cognitive, memory, emotional, social development), socio-cultural, and anthropological significance if it is performed in the right time during the developmental phases of a child. The *Sa sk ras* vary according to age, gender, and caste, representing the very essence of contemporary developmental approach (Singh, & Verma, 2012).

2.5.3.4 Gurukula systems in children's all-round development.

Childhood is a tender age. In fact childhood is not the age to make the child learned, wise and strong but the seeds are shown and all the saplings are planted in a child during this age, so that the child can become learned, wise and strong. It takes the impressions easily and whatever is imprinted in the mind remains there forever. So, all the good *Sa sk ras* should be given during childhood like the power to distinguish between good and bad and other qualities that can help a child grow into a better human being. *Gurukula b sa* also placed an important part in the growth and well-being of the child, where the pupils used to learn as follows:

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*Satya vada/Dharma cara/Sv dhy y nm pramada /
c ry ya priya dhana h tyaj tantu m vyavacchets /
Satyanna pramaditavyam / Dharm nna pramaditavyam/
Ku al nna pramaditavyam/Bh tyai na pramaditavyam/
Svadh ya pravacanabhy na pramaditavyam//*

-Taittiriya panisad 1.11.1

“Speak the truth. Follow dharma. Never miss self-study. Give desired wealth to the teacher and then ensure continuity of the family thread. Don't regress from the truth. Don't regress from dharma. Don't regress from virtuous deeds. Never miss the opportunity for prosperity. Don't commit errors in the study” (Sankaracarya, 2009).

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*Devapit kary bhy na pramaditavyam/ M t devo bhava/ Pit devo bhava/
c ryadevo bhava/ Atithidevo bhava/ Y nyanavady ni karm i/*

-Taittiriya panisad 1.11.2

“Don’t forget to accomplish duties towards god and parents. Treat mother as a Goddess. See a form of God in father. Think the teacher to be God. Treat the guests, who have come without date or appointment of purpose, as God”(Sankaracarya, 2009).

Gurus (teachers) used to put the seeds of values in the field of mind of the students in the right time of their education, which later reflects into life values.

2.5.3.5 Adoptions of orphans in ancient Indian literatures

In *Satya Yuga*, *Satyak ma* didn’t know about his father, who had only his mother *J b la* and was supported and given admission in the *Gurukula* of *Gautam*. *hakuntala’s* father was *ishi Visw mitra* and mother was *Menak* . She was thrown out as an abandoned. *Ka va mahar i* took and brought up her as his own daughter. In those days *ishis* were the social benefactors. However, the *shramas* were supported and maintained by the kings.

During *Tretay yuga* *S ta Devi*, who was found abandoned in the field, during ploughing, was adopted and parented by *R jar i Janaka*. Similarly, *Mondodari*, found abandoned near one *Manduka* (frog) was reared by an Asura king *May sura*.

During *Dw para yuga*, *Mah bh rata* period: *Kar a* was born to *Kunti Devi* when she was not married, but the society accepted *Kar a* as the first son of *Kunti Devi*. According to ancient

Indian lawmakers like Manu, there were ten types of people, who are sons or daughters; like children born to virgins, children born to an extramarital relationship (Manu Sm uti, Chapter 9), were accepted and taken care by the society. Therefore, in Indian society once upon a time, there is no one called an orphan.

2.5.3.6 Solutions according to yoga

Loss due to parental death or permanent separation from parents is never replaceable and the suffering can affect the physical and psychosocial well-being of children and effect further in the daily lively hood. Orphans go through serious consequences at their gross, subtle and causal body levels i.e. physical, vital, mental, emotional, cognitive and social levels. The following lokas highlight our age-old methods to overcome such problems.

२.२

Sam dhi bh van rtha kle atan kara artha ca /

-P tanjali Yoga Sutra 2.2

“The above *loka* advises resorting to yoga for thinning of *kle a* and achieving the higher state of consciousness featured by lesser stresses and emergence of greater capacities” (Saraswati, & Saraswati, 2006). So, Yoga can help to reduce the stress level of Orphans.

As it is suggested in *M n ukya k rik*

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३।४४

*Laye na bodhayet citta bik iptā amayet puna /
Saka ya vij n y t samapr pta na c layet //*

-M n ukya K rik 3.44

“When the mind gets to a state of drowsiness, stimulate and awaken it. As it starts speeding up and distractions set in, calm it down. Do this again and again” (Sankaracarya, 2010).

Recognize the deep-rooted stresses in the form of obsessions, strong likes and dislikes, phobias. Release these when a state of equanimity & bliss is reached. And do not disturb again. Thus, it is a series of successive stimulations and relaxations that can solve this complex problem of mind.

An orphan can nicely utilize the above-mentioned process of M n ukya k rik to calm down the mind. The following *lokas*/mantras highlight how *Karma Yoga* – good and proper actions - helps to bring peace and happiness in life.

- १ | २ ६
Pu yakarmava tsukham/
 - *iva Sa hit 1.26*

“If somebody does good actions, he will achieve happiness. So, one should do good actions to reduce the stress”(Vasu, 2008).

- ८ १ | २ ४
Adhik aye dhibhav k yante vy dhayo'pyalam//
 -*Yoga V i hya 81.24*

“By the removal of mental afflictions, physical diseases arising from mental afflictions are also completely destroyed”(Bharati, 1998).

- ८ १ | ३ ९ -
 ४ २
uddhay pu yay s dho kriyay s dhusevay /

*Mana pray nti nairmalya nika e aiva k ñcanam/
nando vardhate dehe uddhai cetasi r ghava|
Jarayanti tath nnani vy dhistena vina yati||*

-Yoga V i hya 81.39-42

“The mind goes to a state of stillness by pure and holy action and service to saints, as gold is purified by touch-stone. When the mind is pure, one becomes delighted. By the purity of mind, these vital air flow in order and cause the foods to be digested properly. Physical disease perishes on account of that” (Bharati, 1998).

- ८ १ | ३ ७ -३ ८

*T nyeva vy dhit y nti pari masvabh vata |
Evam dherbhaved vy dhistasy mav cca na yati||*

-Yoga V i hya 81.37-38

“Thus it is the perturbed state of mind, which produces the diseases of the body, and the diseases can be removed by removing the mental afflictions” (Bharati, 1998).

६ | १ ७

*Yukt h ravih rasya yuktace asy karmasu/
Yuktasvapn vabodhasya yogo bhavati du kh //*

-Bhagavat G t 6.17

“For him, who is moderate in eating and recreation, temperate in his actions, who is regulated in sleep and wakefulness, yoga becomes the destroyer of pain” (Ramsukhdas, 2012).

The below six *lokas* advise anyone, also an orphan, to follow the spiritual path (*Jñ na Yoga*) to reduce the sadness and to lead a peaceful balanced life.

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Yasmin sarv i bh t ny tmaiv bh d vij nata /
Tatra ko moha ka oka ekatvamanupa yata //
 - v sya Upani ad 7

“One, who always see all the living entities as spiritual sparks, in quality one with the Lord, knows things as they are. What, then, can be a delusion? What is sorrow for him?”
 (Sankaracarya.1998)

The only remedy for the impressions, illusions and anxieties of material existence is to take the knowledge, which is not subject to illusion; the Vedic Esoteric teaching is that perfect source. When we become sincere disciples of the Esoteric teaching, accept the instruction of the Lord and surrender unto him, all illusion, misunderstanding and anxieties are vanquished because we attain direct consciousness of the absolute truth.

३ | ३ ३

Jñ tv deva sarvap pah ni k ai klai airjanmam tyupraha /
 - vet vetara Upani ad 1. 11

“By practicing meditation, when the practitioner gets the knowledge of the ultimate God, then he becomes free from his all mental bondages and mental pains” (Sankaracarya, 1986).

५ | ३ ९ ४

Yajñ tv pr pya vi aya cittav tirvil yate/
Tasmin pari rama yog karoti nirapek aka //
 - vet vetara Upani ad 5. 194

“By knowing this knowledge (about Self), the modifications of the mind are suspended, however active they may be. Therefore, let the yogi untiringly and unselfishly try to obtain this knowledge” (Sankaracarya, 1986).

- ५ । ३ । ९ । ४

*Cittav ttiryad l n tasmin yog bhaved dhruvam/
Tad vijñ yate'kha ajñ narup nirañjana //*
- iva Sa hit 5/194

“When the modifications of thinking principle are suspended then one certainly becomes a Yogi; then it is known the indivisible, holy, pure consciousness” (Vasu, 2008).

- ३ । ३ । ३

Arogitvamad natva yoginastattvadar ana /
- iva Sa hit 3.33

“The truth-perceiving Yogi becomes free from diseases and sorrow or affliction” (Vasu, 2008)

- ६ । ३ । ५

*Yuñjanneva sad tm na yog niyatam nasa /
nti nirv aparam matsa sth madhigacchati//*
-Bhagavat G t : 6.15

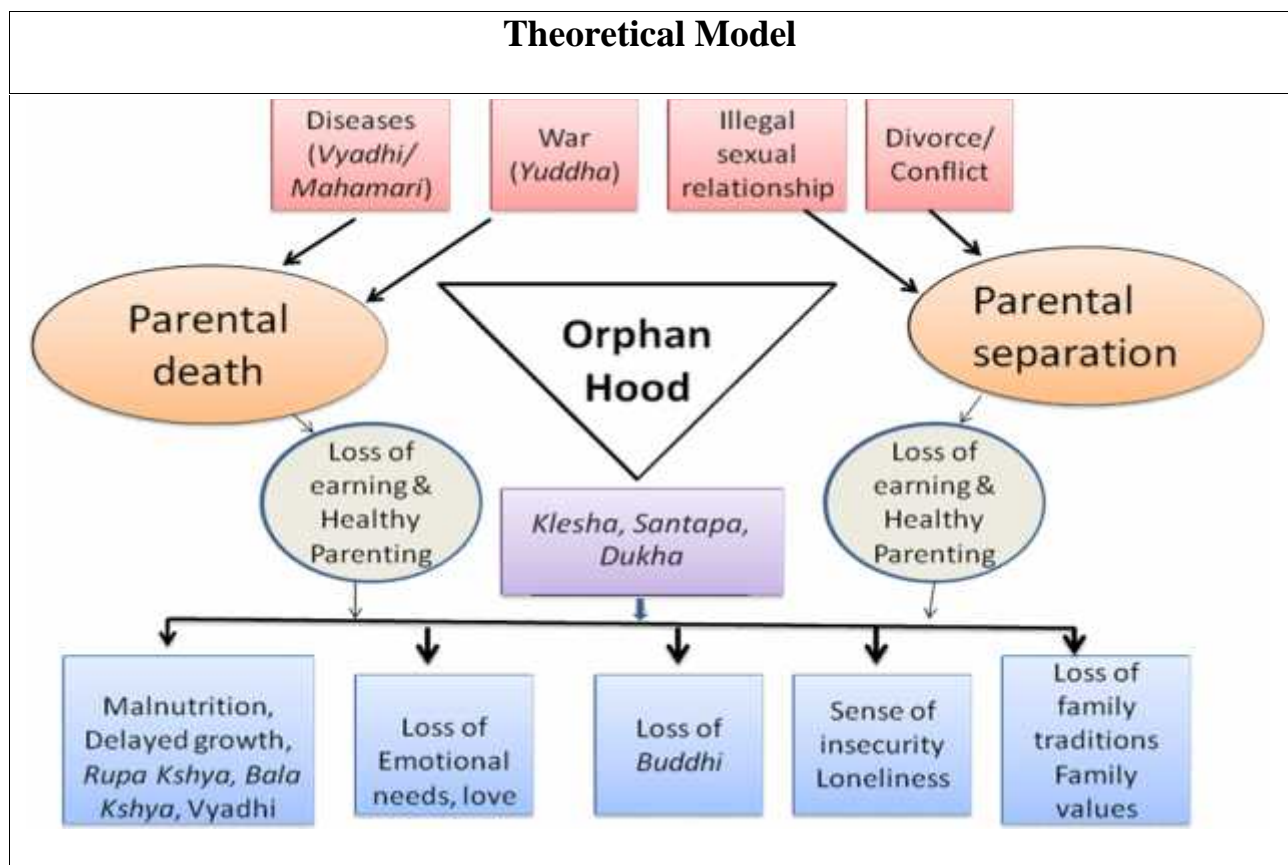
“Thus constantly applying his mind to me, the yogi of subdued mind attains the ever-lasting peace consisting of supreme bliss, which abides in me” (Ramsukhdas, 2012).

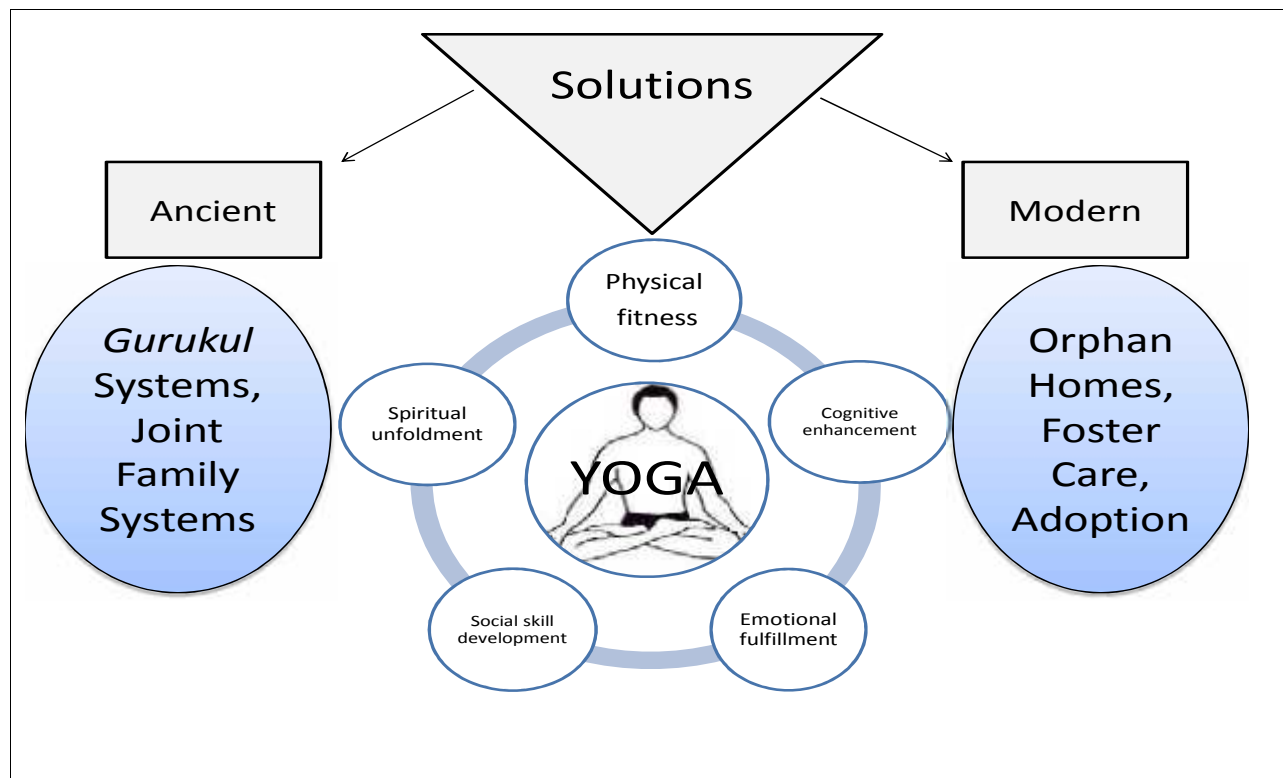
2.6 THEORETICAL MODEL

The above literatures on orphans such as cause of being orphan, their problems and the time tested solutions, which were adopted in ancient India is put in to a model as following (Figure-1).

The modern caring systems of orphans such as orphanage, foster care may incorporate these methods for the betterment of the caring systems.

Figure-1: Theoretical Model





The main reasons for being orphans are found; death of a parent due to war or disease, separation of parents due to conflict and illegal sexual relationships. Hence, there is a reduction in earning source in the family and nobody available to take care of family values. The age old family traditions get lost and it results to an unhealthy growth of the orphan and also a sense of insecurity is raised in the mind of the orphans. They are deprived of proper emotional care and due to this, there is *kle a, sant pa, du kha* in the mind of the orphans. In the long run, this affects on all the *Pañcako a* levels, as losing of *rupa*, losing of *bala*, creation of *vy dhi* in *namaya ko a*, improper flow of *pr a* in *Pr amaya ko a* and arising of *dhi* in *Manomaya ko a* and also loss of *Buddhi*, the discrimination power in *Vijñ namaya ko a* and *nanda* in *nandamaya ko a*.

For this, the solution can be the ancient or yogic system of orphan management. In ancient India, there was *si parampar* or *gurukul a* system to adopt the parentless children. Also, joint family systems took care of such parentless children. Parentless children were given proper care and were accepted as real sons or daughters. Yoga used to be a usual health care system as part of

daily living in Gurukula to nurture their all-round development. Whereas in the modern age, we have foster or orphanage care but they have so many lacunas (Figure-1). Such institutions like orphanages may also adopt Yogic activities as daily curricular activities for the betterment of orphans.

2.7 CONCLUSION

Due to lack of Dharma in the society and deviation from pious living illegitimate sex affairs are sprouting. This leads to increase in a number of orphanages where these abandoned children of the illegal parents are taken care of. Abolition of joint family system in present scenario has led to growing of more orphanages as these forsaken children are not taken care of by their relatives. Modern literature also says that the effect of institutionalisation is controversial. Institutions are unable to provide individualized nurturing, limited caregivers to child ratio, unable to control violence, and deprived of emotional fulfillment as they are away from their family, relatives and society and thus contribute a large extent to global developmental delay and a delay in emotional and behavioral development, which further leading to many physical and mental illness.

Change is the only constant thing in the world. Long long ago, joint family was the norm in the society. Because of the strong support of the Joint family and other good features of the society, the parent-less or single-parent child never felt being an 'orphan'. Such a child was happily welcomed and grown up by the society. But now, we need to accept the reality of the existence of individual nuclear families and face the good and bad aspects/outcomes of it. We need to accept that the current orphan problems and challenges. As good human beings or social animals, we should discover the ways how to make the life of orphans happier. One good answer/solution to this could be Yoga, which has been there and practiced in our Indian society since time

immemorial. In this research, an attempt has been made to explore the effects of Yoga on orphans if it could improve the conditions of orphans in different ways.

3.0 REVIEW OF SCIENTIFIC LITERATURE

3.1 ORPHANS AND PHYSICAL HEALTH

Physical fitness is being considered as a powerful marker of health in childhood and adolescent (Ortega, Ruiz, Castillo, & Sjöström, 2008). Children raised in institutions demonstrated significant delays in poorer physical growth and cognitive development (Smyke et al., 2007); global developmental delay of the children they house (Giese & Dawes, 1999). The death of a parent is a profoundly stressful form of childhood adversity and it can be a cause for increasing the short and long-term risk of physical health problems (Chrousos, 2009; Luecken, Linda & Roubinov, 2012; Olney, 2009; Romero, Dickens, & Cyr, 2009). Another study showed that post-institutionalized children had motor system delays compared to the non-institutionalized children (Roeber, Tober, Bolt, & Pollak, 2012).

3.2 ORPHANS AND COGNITIVE FUNCTIONS

About 200 million children failed to reach their potential in cognitive development globally because of interrelated factors like poverty, inadequate care and poor health (Grantham-McGregor et al., 2007). Adverse childhood events have a negative effect on later life cognitive performance (Ritchie et al., 2011). Childhood socio-economic conditions positively correlated with intelligence, academic achievement and other developmental outcomes in later life (Heckman, 2006; NICHD, 2005). Previous studies with older Post Institutionalization (PI) children have shown reduced performance on cognitive flexibility (Bauer, Hanson, Pierson, Davidson, & Pollak, 2009), working memory performance, (Bauer et al., 2009; Bos, Fox, Zeanah, & Nelson Iii, 2009; Pollak et al., 2010), inhibitory control (Bruce, Tarullo, & Gunnar, 2009; Colvert et al., 2008; Pollak et al., 2010). It is also believed that the higher order cognitive

functions may play an important role in balancing emotional arousal and cognitive processing (Blair & Diamond, 2008) and in reducing the impact of adverse circumstances (Shonkoff, 2011).

3.3 ORPHANS AND PSYCHO-SOCIAL HEALTH

Institutional care is often examined through the problematic psychosocial functioning of children. Mental health problems in children are associated with poorer social relationships, lower academic achievement and reduced physical functioning (Thomas & Boyle, 2002). Orphanages are unable to control violence (Hermenau et al., 2011) and experiences of violence often lead to mental ill health, like depression (Schilling et al., 2007; Elbert et al., 2009).

3.3.1 Anxiety and Depression

Childhood parental loss is one among the important psychosocial stressors in the pathogenesis of major depression and related disorders (Canetti et al., 2000; Kendler, Sheth, Gardner, & Prescott, 2002) and also in contributing the development of heightened anxiety in children (Grover, Ginsburg, & Ialongo, 2005). A study was found that orphans were more likely to be anxious, depressed and to display anger and showed significantly higher feelings of hopelessness and suicidal ideation (Ahmad, Qahar, Siddiq, Majeed, Rasheed, Jabar, & von Knorring, 2005). Another study showed that children living in institutions are prone to suffer from psychiatric disorders (Koumi, et al. 2012), It is highly likely that anxiety levels vary between the orphan and non-orphan children as orphan children lack necessary parental care and supervision (Fawzy & Fouad, 2010).

3.3.2 Aggression

The experience of violence in an orphanage also plays a crucial role in aggressive behaviour of the orphans (Hermenau et al., 2011). Aggression is an important issue among orphans and that must be tackled globally (Puneesha, 2013).

3.3.3 Impulsivity

Impulsivity describes one's tendency to act without forethought. It is a personality trait that profoundly influences one's behavior and can be an indicator of deficits in decision making (Zermatten, Van der Linden, d'Acremont, Jermann, & Bechara, 2005; Franken, van Strien, Nijs, & Muris, 2008) and the development of several psychiatric diseases (Moeller, Barratt, Dougherty, Schmitz, & Swann, 2001). Exposure to prolonged early institutional deprivation of orphans may be linked with long-term cognitive impairment and behavioural deficits like impulsivity (Eluvathingal et al., 2006; Merz, McCall, Wright, & Luna, 2013).

3.3.4 Self esteems

Lower levels of self-esteem are associated with more loneliness, peer rejection, depression (Orth, Robins, & Roberts, 2008), aggression, and delinquency (Baumeister, Campbell, Krueger, & Vohs, 2003). Various studies have shown that orphans have a significantly low self esteem in comparison to non orphan children (Musisi, Kinyanda, Nakasujja, & Nakigudde, 2007; Farooqi, 2009).

3.3.5 Loneliness

Prevalence of loneliness is 80% of the population below 18 years (Mushtaq, Shoib, Shah, & Mushtaq, 2014). Loneliness is common among left behind children like orphans (Jia & Tian,

2010) and it may be due to the poor relationship with the staff, caregivers, lack of love from community or memory of parental loss (Sebsibe, Fekadu, & Molalign, 2014). Orphan and vulnerable children suffer both disturbed social interaction and peer relationship problems (Tarullo, Bruce, & Gunnar, 2007; Zhao et al., 2007) and have a negative impact on social development due to loss of parental care (Crenshaw & Garbarino, 2007; Killian & Durrheim, 2008). Parental support was inversely related to baseline levels of loneliness (Spithoven et al., 2015).

3.3.6 Mindfulness

Mindfulness can bring about various positive psychological effects such as increased subjective well-being, reduction in psychological symptoms and emotional reactivity and improvement of behavioural regulation (Keng, Smoski, & Robins, 2011). It also plays an important role in reducing maladaptive impulsive behavior (Peters, Erisman, Upton, Baer, & Roemer, 2011), substance abuse (Brewer et al., 2009) social anxiety, managing stress (Kabat-Zinn, 2004) and depression in adults (Jazaieri, Goldin, Werner, Ziv, & Gross, 2012).

Recent reviews of mindfulness-based interventions on school suggest that these programs promote self-regulation skills and resilience to stress (Serwacki & Cook-Cottone, 2012) More specifically, mindfulness-based curricula have been successful in enhancing emotional and behavioral regulation among diverse groups of school students (Broderick & Metz, 2009; Schonert-Reichl & Lawlor 2010), underprivileged school students (Black & Fernando 2014; Mendelson et al. 2010), Lower socio-economic backgrounds (Costello, 2014) and adolescents with ADHD (Van der Oord, Bögels, & Peijnenburg, 2012; Jensen, & Kenny, 2004, & Abadi, 2008).

3.4 INTERVENTIONS ON ORPHANS AND ORPHAN LIKE DEPRIVED CHILDREN

There were several interventions attempted on orphans as a rehabilitation program or therapy program to promote their all-round health and well-being. A recent RCT, 12 weeks of leisure time activities showed a significant effect on mental health parameters like (emotional stability, overall adjustment, autonomy, security-insecurity, self-concept and intelligence) of orphan children (Sharma & Jena, 2015). Seventy adolescent girls from a welfare organization showed a significant reduction in post- Coppersmith Self Esteem inventory scores after eight weeks of aerobics exercise (Hasanpour, Tabatabaei, Alavi, & Zolaktaf, 2014). Significant positive difference was observed in anxiety and self-esteem scores over time after physical activities in orphans (Kolayi , Sari, Soyer, & Gürhan, 2011). Another positive psychology based intervention on 3,305 orphans and vulnerable children showed significant mental health improvements (reduction of trauma, improved coping, increased self-confidence, increased hope and happiness, reduced mood swings and depression, improved learning and communication, and improved relations with care workers and others) (Bill, Malik & Memory, 2012). Five weeks of psychosocial structured activities intervention (a school-based multi-phased approach designed to enhance resilience, coping skills, self-esteem and future planning) showed significant improvement in participants' well-being (Ager et al., 2011).

Community-based psychosocial intervention for six months on 297 youth Children affected by HIV and AIDS from the deprived community showed significant programme effect on self-efficacy scores whereas no programme effect was on depression scores, emotional and behavioural and self-esteem scores (Mueller, Alie, Jonas, Brown, & Sherr, 2011). Manual based short term writing intervention on adolescents from refugee camp showed a reduction in posttraumatic stress symptoms in both intervention and control groups, an improvement in

depression in the intervention group, and no change was observed in anxiety symptoms. However, at follow-up, a significant decline in depression scores was evident (Lange-Nielsen et al., 2012). Two studies were done on school-based psychosocial intervention on students affected by armed conflict; a study by Jordans et al., (2010) showed significant reduction in anxiety, depression and anger scores but no effect on self-concepts while another study showed significantly better attributional style, higher perceived credibility, inter-personal trust, communication skills and reduced level of self-blame, hyperactivity, emotional symptoms and conduct problems in intervention group (Khamis, Macy, & Coignez et al., 2004). In contrast, cognitive behavioural strategies and stress inoculation training showed no significant effect of the intervention on depression, separation anxiety and posttraumatic stress on war-affected children in Lebanon (Karam et al., 2008). An intervention on art activities on orphans from Uganda showed improvement in sense of colours, ability to transfer emotional experience into visual expression, artistic skill; a heightened self-confidence; an increase in originality of subject and form; a deepened understanding of art and the artistic process; and a broadened sense of artistic culture in general (Ivanova, 2004).

Table-2.1: Interventions on orphans and orphan like deprived children

First author (year)	Samples Size (total and group wise)	Age range/g rades	Other interventions (frequency)	Study Design	Summary of the results	Remarks
Sharma (2015)	N=60(experimental gr, n=30 and Control gr,n =30) orphan children	13-18 years	Leisure Time Activities for 12 weeks	Training program was not imparted to control group	-Significant effect on mental health parameters like (Emotional Stability, Overall Adjustment, Autonomy, Security-Insecurity, Self Concept and Intelligence) of orphan children.	-RCT -Singh and Gupta Mental Health Battery Validated in India
Hasanpour (2014)	N= 72, adolescent girls from Isfahan Welfare Organization	3-19 years	8 weeks of aerobics exercise, 3 sessions per week and 60 minutes	No intervention	-A significant difference (reduction) was obtained in post- Coppersmith Self Esteem inventory scores	--Matched random sampling -limited to one Organization
Bill (2012)	3,305 orphans and vulnerable children (OVC),	0-18 years	A positive psychology based psychosocial support (PSS) program using aerobic laughter	No control group	Significant mental health improvements including reduction and healing of trauma, improved coping, increased self-confidence, increased hope and happiness, reduced mood-swings and depression, improved learning and communication, and improved relations with care workers and others	No control group.
Lange-Nielsen (2012)	N = 139; Adolescents from refugee camp in Gaza	12–17 years	Manual based short term writing intervention involves six short writing sessions over 3 consecutive days (2x15 min session each day).	-RCT -Waitlist control Four-five months follow up	Significant decline in PTSD symptoms in both intervention and control group. Significant increase in intervention groups' depression from T1-T2. Significant decline in depression from T3-T4. No significant change in intervention groups' anxiety scores from T1 – T2 or T3 to T4.	Intervention involves unstructured and structured writing detailing their traumatic memories and insights from what they have experienced.
Jacob (2011)	N=98; Children from socio economically disadvantaged background	7-9 years	Aerobics	No control group	Number of shuttles was significantly positively correlated with two of the cognitive tests: comprehension and block design	-Samples are from an specific group -No control group design
Ager (2011)	N = 403; Displaced primary school students	7 – 12 years	Psychosocial Structured Activities (PSSA) intervention.	Quasi-experimental	Significant improvement in participants' well-being measured by parents and children. Evidence from	-PSSA intervention, school-based multi-phased approach

			15 × 60 min sessions delivered over course of five weeks.		parent and teachers: girls performance is greater than boys and older children making greater progress than younger children.	designed to enhance resilience, coping skills, self esteem and future planning.
Mueller (2011)	N = 297; Children affected by HIV and AIDS age 8–18 in deprived community in South Africa	8–18 years	Community based psychosocial intervention (consisted of art education) activities for six months.	Quasi-experimental	-Significant program effect on self-efficacy scores -No program effect on depression scores, emotional and behavioural Scores and self esteem scores	-Intervention designed to build a sense of self-worth, self-concept, empowerment and emotional control
Kolayis (2010)	25 orphans	11,04±0.84years	8 weeks practiced physical activities	No control gr.	There was a significant difference (P<0.05) between pre-test and post-test of anxiety and self-esteem points.	No control group.
Caldwell (2010)	N=2193 adolescents	mean age 14 years	School based leisure, life skills and sexual education intervention 12 lessons; grade 8 followed by 6 booster sessions in grade 9 program.	Life Orientation curriculum taught in control schools	-Intervention group: significant increase in intrinsic motivation and perception of condom availability; decrease in introjected motivation and amotivation. -Control group: 'steeper increase' in recent and heavy use of alcohol and cigarette use.	NRCT
Jordans (2010)	N = 325 Students affected by armed conflict	11–14 years	School based psychosocial intervention, 15 sessions delivered over course of 5 weeks. Delivered by para-professionals.	-Cluster randomized controlled trial	-Significant reduction in anxiety scores, depression scores, anger scores -No significant reduction effect on self-concepts	Aims to reduce distress and increase resilience and empowerment through enhancing coping, pro-social behavior
Kumakech (2009)	N = 326 orphans	10–15 years	Two peer support interventions held per week in classroom for 10 weeks. Teachers trained to deliver Intervention	Cluster-randomized control trial	-Significant reduction in anxiety scores, depression scores and anger scores -No significant reduction effect on self-concepts	-Aims to encourage participants to reflect, challenge and face difficult experiences and to develop coping skills
Karam (2008)	N = 209, War affected children in Lebanon	6–18 years	Cognitive behavioral strategies and stress inoculation training 12 × 90 min sessions implemented over 12 consecutive school days	Quasi experimental design	-No significant effect of the intervention on depression, separation anxiety and posttraumatic stress. Rates of disorders peaked one month post-war and decreased over one year.	Control group did not receive structured activities

Loughry (2006)	N = 400 Children and adolescents from conflict areas of Palestine	6–17 years	Child-focused intervention.	Quasi experimental design	-Significant reduction in intervention groups; total, externalizing and internalizing problem scores	Control group did not receive structured activities
Bonhauser (2005)	198 secondary school students from low socio-economic background from Santiago, Chile	age 15 years	School based physical fitness Four units made up of three sessions each week (90 min each) for ten weeks for each unit Sessions taught by regular Teachers	Control group received 90 minute exercise class once a week	-Significant improvement in anxiety and self-esteem scores -No significant changes in depression scores -Significant increases in physical fitness: oxygen capacity; speed and jump performance scores	Intervention duration is less in control as compared to experimental group
Ivanova (2004)	60 orphans from Uganda	7-18 years	Art activities (two 1week visits and the opening of five art workshops: Art History, Ceramics, Painting, Installation Art, and Fashion Design)	No control group	-Artwork showed: (a) improvement in sense of colours, ability to transfer emotional experience into visual expression, artistic skill (b) a heightened self-confidence, (c) an increase in originality of subject and form (d) a deepened understanding of art and the artistic process, and (e) a broadened sense of artistic culture in general.	-No statistical parameters used The results, based on personal observation, -No control group
Khamis (2004)	N = 664; Children and adolescents affected by armed conflict in Palestine	6–11 and 13–16 years	School based psychosocial intervention Program implemented by trained CBI counselors	RCT	-Intervention group: Significantly better attributional style, higher perceived credibility, increased inter-personal trust, improved communication skills and reduced level of self-blame, hyperactivity, emotional symptoms, conduct problems, peer problems -Control group: Hyperactivity levels decreased significantly in adolescent	-Aimed to reduce distress and increase resilience and empowerment

3.5 YOGA AND PHYSICAL HEALTH OF NORMAL CHILDREN

Yoga is now considered as an important intervention for promoting physical health. An RCT showed a significant improvement on minimum muscular fitness in normal school children after 30 mins of yoga practice for 3 weeks, whereas no improvement was observed in control group (Gharote, 1976). There was a significant improvement in hand grip strength, hand grip endurance and respiratory pressure in yoga group after six months of training whereas the performance of control group was statistically insignificant (Madanmohan, Jatiya, Udupa, & Bhavanani, 2003). In another study, upper body and lower body muscle strength were assessed and general body endurance was evaluated by push-up and sit-up tests before and after 24 weeks of practice, where both yoga and control groups had shown significant improvement in all tests (Bhutkar, Bhutkar, Taware, & Surdi, 2011). In another RCT with 91-school children (aged 7-9 yr) assessed upper and lower extremity muscle strength, endurance and aerobic capacity. Specific yoga practice; slow and fast Suryanamaskar also found significant improvement in isometric hand grip strength and endurance and Pulmonary functions (Bhavanani, Udupa, Madanamohan, & Ravindra, 2011). Both yoga and PE groups showed significant improvement in endurance and aerobics capacity except forearm muscles strength after receiving intervention for 3 months (D'souza & Avadhany, 2014). Similar to above, a study by (Telles, Singh, Bhardwaj, Kumar, & Balkrishna, 2013) did not demonstrate any significant improvement in muscles strength as compared to pre to post whereas muscles endurance improved significantly in both the yoga and control groups (Telles et al., 2013).

Motor speed improved significantly after ten days of yoga training in the children's group versus a control group as measured by finger tapping task (FTT). Findings included (Dash & Telles,

1999). Another three-month study showed a significant decrease in the time to perform the plate tapping test (PTT) in yoga group compared to the physical exercise group (Telles et al., 2013).

A systematic review of yoga and balance by Jeter Pamela and colleagues in 2014 identified 15 studies on healthy population and concluded that yoga may have a beneficial effect on balance (Jeter et al., 2014). A study conducted on fourth- and fifth-grade students found that children in the yoga group had better post-intervention score in balance than the non-yoga group after the training period of 12 weeks and one per week (Berger, Silver, & Stein, 2009). In contrast, two studies did not demonstrate any significant result after yoga training. In one RCT single leg balance test assessed by flamingo test on 98 school children. No significant improvement observed in the yoga group, whereas a significant decrease was observed in the physical exercise group (Telles et al., 2013). Another study on 33 girls (instructor-led yoga, n=14 and video-led yoga, n=19) and all subjects used to go through a 30- to 40-minute yoga class 2 times per week and a walking program 3 times per week for 7 weeks, where both the groups did not change significantly in their balance scores (Donahoe-Fillmore, Brahler, Fisher, & Beasley, 2010).

Table-2.2: Yoga and physical health of normal children

First author (year)	Samples Size (total and group wise)	Age range/ grades	Yoga intervention	Control group Intervention	Outcome measures	Results	Strength	Limitations
Bhavanani (2011)	N =42, (SSN, n=21; FSN, n=21)	12-16 years	SSN: 5 rounds (each 6min), FSN: 15 rounds (each 2 mins) for 30–40 mins for 6 months.	No control	HGS and hand grip endurance, Systolic pressure & Pulmonary functions	-FSN produced a significant improvement in systolic pressure, -HGE was significantly high in FSN compared to SSN group. -Pulmonary function tests showed improvements in both the groups.	- RCT -6 months intervention	-No true control group
Chen (2009)	N=31; Yoga, n= 16; Control , n=15	7 - 12 years	YG: 60-minutes for 2 weeks	PE:60-minutes for 2 weeks	BMI, flexibility, muscular strength, endurance, and cardiopulmonary fitness.	-Improvement of BMI, flexibility, muscular strength, and cardiopulmonary fitness compared to Yoga group.	Age range was less	-A quasi-experimental research design, -small sample size -Not a RCT
Crystal D'souza & Avadhany (2014)	91-school Children; Yoga, n=46, PE, n=45	7-9 years	Yoga: 45 mins daily for 3 months	PE: passive stretching & aerobic exercises for 45 mins daily for 3 months	Endurance and aerobic capacity. muscle strength	Both the group showed significant improvement for all other variables except forearm muscles strength	-RCT -Age range was less	-Detraining effect of yoga is not mentioned
D'souza & Avadhany (2014)	91-school children, (Yoga, n=46, PE:n=45)	7-9 years	Yoga: 45 mins daily for 3 months	PE: passive stretching & aerobic exercise for 45 mins daily for 3 months	PEFR and pulmonary pressures	Significant increase was observed in PEFR in YG after post-intervention	-RCT -Age range was less	-Detraining effect of yoga is not mentioned
Dash (2001)	N = 172 (Yoga, n=86, Control, n=86)	12-15 years	Yoga: 10 days	Routine Activities	HGS	Yoga practice improve hand grip strength	Good sample size	NRCT
Donahoe-Fillmore (2010)	33 female (Instructor-led yoga: n= 14 &	14 to 18 years	Yoga: 2 times/week for 7 weeks	A walking Program: 3 times/ weeks	Hamstring flexibility, body fat, strength,	-Both groups showed improvement but did not reach to	Adequate intervention al period	Inclusion of only female participants

	Video-led yoga: n=19)			for 7weeks.	and balance	significant level; -Balance scores and body fat percentages remained constant over the intervention period in both the groups		
Gharote (1976)	N=9; YG, n=4, C, n=5	12 to 20 years	Yoga: 30mins/ session,6days/week for 3weeks	Routine Activities	Minimum Muscular fitness	YG showed improvement	RCT	Small sample size
Hagins (2013)	N=30 ,(Yoga: n = 15; PE, n = 15)	6th graders	Yoga: 50 min/session, 3time/week, 15weeks	PE :50 min/session, 3time/week, for 15weeks	BP, HR; mental arithmetic and mirror tracing tasks	Yoga did not show significant differences in stress reactivity compared to a physical education class	RCT	-Small sample size -Yoga intervention was not focused on stress management
Mandanmohan (2003)	N=40 (Yoga, n=20, Control, n=20)	12 to 15 years	Yoga: 45 minute for 6 months	No intervention received	Pulmonary function tests	-Yoga training produced statistically significant improvement in HGS and HGE. MEP, MIP, FEV, FEV1 and PEFr; Control group did not show any significant improvement.	Long intervention	-Small sample size - No follow-up
Telles (2013)	N=98,(Yoga: n = 49; PE, n = 49)	8 to 13 years	Yoga: 45 mins/day, 5 days/week.	PE: 45 minutes/ day, 5 days/ week.	Euro-fit physical fitness test battery	Both groups showed improvement in BMI, sit-ups, leg balance worsened in the PE group, while plate tapping improved in the YG.	-RCT	-no true control group. -Generalized to only north Indian children
Varma (2014)	N=82(Experimental, n=41, Control, n=41)	11-15 years	Yoga: 45 mins, 5 days/week for 12 weeks	Regular Physical training sessions throughout the study period	Micro nutrients absorption, Physical health	-Significant increase in flexibility, grip strength, abdominal strength	RCT	No true control group

Abbreviations: Yoga Group (YG), Physical Exercise (PE), Randomized control trail (RC T), Slow Suryanamaskar (SSN), Fast Suryanamaskar (FSN), Hand grip strength (HGS), hand grip endurance (HGE), maximum expiratory pressure (MEP), maximum inspiratory pressure (MIP), forced expiratory volume (FEV), forced expiratory volume in first second (FEV1) and peak expiratory flow rate (PEFR), Blood Pressure(BP), Heart Rate (HR)

3.6 YOGA AND COGNITIVE FUNCTIONS OF NORMAL CHILDREN

A recent meta-analysis study of RCTs on yoga and cognitive function which included 15 RCTs and 7 acute exposure studies concluded that yoga is associated with overall moderate improvements in cognitive abilities, particularly attention, processing speed, executive function, and memory (Gothe & McAuley, 2015). Another RCT on 98 students, (Yoga: n = 49, PE: n = 49) showed improvement in executive functions in yoga group but physical exercise group showed high interference measured by Stroop test (Telles et al., 2013). A three-months yoga intervention showed significant improvement on cognitive performance in 200 school children, aged 7–9 years from a socioeconomically disadvantaged background of South India (Chaya, Nagendra, Selvam, Kurpad, & Srinivasan, 2012). Yoga techniques like cyclic meditation and supine rest showed positive improvement on the psychomotor test, immediately after a single session on 208 children age between 13-16 (Pradhan & Nagendra, 2010).

Another study found out that yogic lifestyle had a positive impact in planning ability and execution time, Verbal and Visual memory and sustain attention in 108 healthy boys between 11 and 13 years (Rangan, Nagendra, & Bhat, 2008, 2009). Earlier studies on Yoga including physical postures, yoga breathing, meditation and guided relaxation have been shown in improving delayed recall of spatial information and verbal memory on 30 children compared to the fine arts and control groups (Manjunath & Telles, 2004). One month yoga training showed a significant reduction in planning and execution time whereas no change found in the physical training group (Manjunath & Telles, 2001).

Table 2.3: Yoga and cognitive functions of normal children

First author (year)	Samples Size (total and group wise)	Age range/ Grades	Yoga intervention	Control group Intervention	Outcome measures	Results	Strength	Limitations
Telles(2013)	N=98;Yoga: n = 49 and PE: n = 49	8 to 13 years	Yoga: 45 mins/day, 5 days/week.	PE: 45 minutes/day, 5 days/ week.	Stroop colours-word task for children,	Both group showed improvement in all subtests of Stroop test , but PE group showed high interference - Academic performance & attention are improved over time.	RCT	-no true control group. -Generalized to only north Indian children
Rangan (2008, 2009)	N=98; Yoga based GES and MES 49 in each group	11 to 13 years	Yoga based GES for one year	MES program for one year	- Planning ability - Verbal and Visual memory -Sustain attention	Between group results showed significant improvement in GES compared to MES. Within group comparison showed improvement in both the groups.	Comparison of two educational systems.	NRCT Experimental set up for both the groups were different
Pradhan (2010)	N= 208; Boys-132, Girls- 76	13 - 16 years	Cyclic meditation (CM) with duration of 22 minutes and 30 seconds.	Supine rest (SR) with duration of 22 minutes and 30 seconds.	Six letter cancellation task (SLCT)	-Both CM and SR led to improve in performance, as assessed by SLCT -The change caused by CM (14.5%) was larger than SR (11.31%).	Large sample size with small age range	-Single and short intervention -Immediate effect -Self as control study
Manjunath (2004)	N=90; Yoga n=30, Fine Arts n=30 & Control n=30	11 to 16 years	Yoga camp for 10 days (approx. 8 hours/day)	fine arts camp (approx. 8 hours/day) and no intervention group	Verbal and spatial memory tests	YG improved delayed recall of spatial information.	Three armed groups	-Long duration of intervention (8 hours/day) -Not a RCT
Manjunath (2001)	N=20 girls; Yoga, n=10, PE,n=10	10 to 13yrs	Yoga: one month daily (1h15mins/day)	Physical training for one month daily (1h15mins/day)	Tower of London task	The planning and execution time was reduced significantly in Yoga group. No change found in control group	- RCT	-Short term intervention , -Small sample size
Abbreviations: Gurukul Education System (GES), Modern Education System (MES), Yoga Group (YG), Physical Exercise (PE), Randomized control trail (RC T)								

3.7 YOGA AND PSYCHO-SOCIAL HEALTH OF NORMAL CHILDREN

A recent systematic review analyzed 80 full-text articles with yoga interventions addressing anxiety among children and adolescents with aged 3–18 years found a reduction in anxiety score after yoga intervention nearly in all studies (Weaver & Darragh, 2015). An RCT conducted on 98 north Indian school children aged 8 to 13 yr showed a significant improvement in self-esteems for yoga group and behaviours in both the groups over time after 3 months of intervention (Telles et al., 2013). Similarly, yoga group had better post-intervention in negative behaviours scores and balance than the control group after 12 weeks of intervention (Berger et al., 2009). Another RCT was conducted to measure the efficacy of eight-week mindfulness training through yoga on 155 middle school girls showed significant improvement in self-esteem and self-regulation in both yoga and control groups (White, 2012). In addition, both the groups: yoga practice and traditional physical education activities showed improvement in self-esteem after eight weeks of intervention (Bridges & Madlem, 2007).

In an RCT study on 11 weeks of yoga or physical education sessions on students studying in a secondary school showed a slight improvement in anxiety while the score reduced in the control group (Khalsa, Hickey-Schultz, Cohen, Steiner, & Cope, 2012). Another RCT study with Kripalu based yoga program or physical education for 10 weeks, where Self-reported Profile of Mood States-Short Form and tension-Anxiety subscale improved in the yoga group, whereas worsened in controls (Noggle, Steiner, Minami, & Khalsa, 2012).

In contrast to above studies, there was no significant impact on emotional and behavioural function on 30 middle school children who received yoga compared to physical activity group (Haden, Daly, & Hagins, 2014); however, they have reported that the study had inadequate sample size and dose of the intervention.

Table-2.4: Yoga and psycho-social health of normal children

First author (year)	Samples Size (total and group wise)	Age range/ Grades	Yoga group interventions	Control group intervention	Outcome measures	Results	Strength	Limitations
Haden (2014)	N=30; Yoga, n=15; PE, n=15	10-11 Years	Yoga: 3 times a week for 12 weeks.	PE class, 3 times a week for 12 weeks.	Self-reported positive affect, global self-worth, aggression	-No differentially impact on middle school children's emotional and behavioural functioning.	-Rigorous study design	-Inadequate sample size & dose of the intervention -Failure to measure intervening variables
Telles(2013)	N=98; Yoga: n = 49; PE: n = 49	8 - 13 years	Yoga:(breathing techniques, postures, relaxation and chanting) 45 minutes, 5 days a week.	PE:jogging, rapid repetitive movements and relay races or games, 45 minutes each day, 5 days a week.	-Battle's self-esteem inventory -Children's obedience, punctuality, and behavior with friends and teachers.	-Total ,general and parental self esteem improved in yoga group - Obedience, behavior with friends and teachers are improved in both the groups over time from pre to post	-RCT	No active control group. Generalized to only north Indian children
Noggle (2012)	N=51; Yoga, n=34 & PE, n=17	11 th and 12 th graders	Yoga:30-40 mins, 2 to 3 times / week for 10 weeks	PE : 30-40 mins, 2 to 3 times / week for 10 weeks	POMS-SF, PANAS, PSS, IPPA, Resilience Scale, STAXI-2, CAMM .	-POMS-SF, Tension-Anxiety subscale improved in yoga group -Positive affect remained unchanged in both groups. - Mood disturbance and negative affect significantly worsened in controls but improved in yoga group.	- Cluster randomization -Age range is less	-Frequency of intervention less -No follow up study -Passive control (not able to control on doses of PE)
Khalsa (2012)	N= 136; Yoga n=74 & PE, n=62	12 to 21 years	Yoga: 11 wks	PE for 11 weeks	mood, anxiety, perceived stress, resilience	-Slight improvement in anxiety in Yoga group, where as reduction in anxiety score in control group.	RCT	No true control group.

White (2012)	N=155; Yoga, n=70 & WLC, n=85	8-11 Years	Yoga: 1 hr / week for 8 weeks and 10 minutes of daily homework	Regular activities	Perceived stress, Coping abilities, Self-esteem, and Self-regulation	-Increased in Self-esteem and self-regulation in both Mindful Yoga and wait list control group	RCT Large sample size	-Lack of ability to measure self report questionnaires, behavioral disturbance, less space, individual care
Berger (2009)	N=71; Yoga, n=39 & Control, n=32	4th- and 5th-grade students	Yoga: 1h/week for 12 weeks	No activity in control group	Perceived physical well-being and Emotional well-being	-Yoga group had better post-intervention negative Behaviors scores and balance than the control group. -Improvement in children's perceived well-being	Showed positive effect of yoga although limited intervention	-Duration of intervention is less. -No activity in control group
Bridges (2007)	N=53; Yoga, n=26 & Control, n= 27	13 to 14 yrs	Yoga 40-min daily, 2days/week	Traditional PE activities 2dys/ week for 40-min sessions	Self-esteem	Self-esteem increased in both the yoga and control groups	Age range is less	NRCT
YG- Yoga Group, PANAS Positive and Negative Affect Schedule for Children, PSS Perceived Stress Scale, IPPA Inventory of Positive Psychological Attitudes, STAXI-2 State Trait Anger Expression Inventory-2™, CAMM , Child Acceptance Mindfulness Measure.								

3.8 YOGA STUDIES ON ORPHANS AND OTHER DEPRIVED CHILDREN

Mean stress score measured by children's perceptions of stress decreased significantly after 5 weeks of school-based mindfulness program on 63 children with a low socioeconomic background (Costello & Lawler, 2014). Eight weeks of yoga or dance classes demonstrated a reduction in trauma-related symptoms and EBD in 76 children (Culver, 2014). Fifty-four behaviorally inhibited and activated children randomly divided into Mind-body-based stress reduction group, who showed a reduction in stress and Gymnastic or arts group who did not exhibit any positive changes after 5 weeks of intervention (Jellesma & Cornelis, 2012). Another study on 21 male adolescents with emotional and behavioural difficulties showed a reduction in hyperactivity and trends towards improvement in pupil's emotional symptoms and conduct, self and social confidence, communication with peers and teachers, self-control, attention span and eye contact with teachers after 12 yoga sessions (Powell & Potter, 2010). Yoga based Transformative Life Skills (TLS) program on 472 students with emotional and behavioural difficulties (Control group, n=85 students) showed statistically significant decrease in PSS-10 scores and increase in Tangney's Self-Control Scale (TSCS-13) scores from pre to post-test (Ramadoss, 2010, Study-II). Another study on 120 deviant children (40 in each group for 2 experimental; Yoga cognitive training (YCT), Human relationship training (HRT) and one control group) suggested that both the experimental groups had significant changes in their maladjustment and antisocial behaviors after one year intervention (Kannappan & Lakshmi Bai, 2008). Children in a remand home had a significant improvement in sleep, appetite and general well-being, as well as a decrease in physiological arousal after 6 months of yoga intervention (Telles, 1997).

Table-2.5: Yoga studies on orphans and other deprived children

First author (year)	Samples Size (total and group wise)	Age range/gr ades	Yoga groups interventions	Control group intervention	Outcome measures	Results	Strength	Limitations
Costello (2014)	63 children from lower socio-economic backgrounds	11-12 years	5-week school-based mindfulness program	No control group	Perceived Stress Scale (PSS-10), Qualitative interview	-Mean stress score decreased significantly from pre to post	- Age range is less	-No control group
Culver (2014)	76 orphan children	7 to 17 years	yoga postures, breathing exercises, and meditation for 8 weeks of yoga	-8 weeks of aerobic dance classes -Wait List Control group	UCLA PTSD Reaction Index and the Strengths and Difficulties Questionnaire	-Analyses of variance revealed a significant effect of yoga on the trauma-related symptom scores. -Regression analyses yoga or dance classes showed a reduction in trauma-related symptoms and EBD, although this finding was not statistically significant.	-use of cross-culturally validated assessment tools, quantitative and qualitative methods, two control groups, and low-risk activities.	-Some baseline differences existed between groups - small sample size, No randomization at individual level -No blinding to the participants, -Concern on interviewer and reporting bias, and no long-term follow-up
Chaya (2012)	N=200, (socio-economically disadvantaged children)	7-9 years	Yoga for 3 months (45 minutes 6days/week)	Physical activities for 3 months (45 minutes 6days/week)	Cognitive functions (attention and concentration, visuo-spatial abilities, verbal ability, abstract thinking, WISC	-Significant increase of cognitive functions in both the groups.	-RCT - Large sample size -Low age range, specific group of sample - low attrition rate	-not having a true control group
Jellesma (2012)	N=54(Yoga, n=30, Control, n=24). Behaviorally Inhibited and Activated Children	8 -13 years	mind-body-based stress reduction program 5 weekly sessions of about 50 mins	Gymnastic or arts 5 weekly sessions of about 50 minutes	children's behavioral inhibition system (BIS) and behavioral activation system(BAS)	-Reductions of stress were seen only in the intervention group and mainly in children with high BIS	-RCT	-skewed distribution of boys and girls in the control group. - a pilot study - self-reports - small sample size.

Patil (2011)	28 orphanage girls and 24 deaf and mute children randomly assigned to yoga and games	Mean ages 14 ± 2 years	Yoga: Yogasanas (50 mins) and guided relaxation in shavasana (10 mins).	Games: (40 mins) relay races 20 mins.	Electrocardiogram (ECG), respiration, and the skin resistance.	-YG showed significant reduction in breathe rates for the orphanage girls. Both yoga and games group showed decreases in heart rates. The orphanage girl's YG showed an increase in skin resistance, while the games group showed a decrease in skin resistance	6 months follow up was carried out	NRCT
Powell(2010)	21 male disadvantaged adolescents (with emotional and behavioural difficulties)	11 to 16 years	The SDP ; includes yoga 12 one hour sessions delivered over two school terms (e.g. spring and summer).	No control group	-Strengths and Difficulties Questionnaire (SDQ) - Qualitative data was collected using open-ended questions	-Reduction in hyperactivity as reported by their teachers. -Trends towards Improvement in pupil's emotional symptoms and conduct, self and social confidence, communication with peers and teachers, self-control, attention span and eye contact with teachers.	-Age range was less	The response rate was 64%. -Small sample size - lack of rigor in design and measures -lack of control -no blind scoring
Ramados (2010) Study-II	Yoga =472 Control group, n=85 students)	12-17 years	Yoga based TLS protocol (15- minutes /session for 18-week)	no-intervention for control group	PSS-10 and TSCS-13	-PSS-10 scores decreased and -TSC-13 scores increased significantly only in YG from pre to post-test.	Adequate sample size	-Pilot study - Intervention Class distribution is not same
Ehud (2010)	N= 122, children with postwar stress situations	8-12 years	13 Yoga training sessions over 4months	No control gr.	Concentration, mood and ability to function under pressure	Significant improvement in children's concentration, mood and ability to function under pressure	- Use of standardized questionnaires	-No control gr., -age-limited ability for self-observation.
Kannappan (2008)	N=120 deviant children, (40 in each group; 2 experimental and control group)	10 th grade	Group1: YCT Group2: HRT (weekly twice for one year)	No training to control group	Behavioral deviance check list	-both experimental groups had significant changes in their maladjustment and antisocial behaviors.	-RCT. -Accessed in 3 points of time	Not an active control group
Abbreviations: Yoga-cognitive training (YCT), Human relationship training (HRT), Emotional and behavioral disorder (EBD), Wechsler Intelligence Scale for Children (WISC), Self discovery Program (SDP), Transformative Life Skills (TLS), Tangney's Self-Control Scale (TSCS-13), Yoga cognitive training (YCT), Human relationship training (HRT)								

3.9 YOGA ON CHILDREN WITH PSYCHOLOGICAL ABNORMALITIES

Thirty-seven children with Emotional and behavioural disorder (EBD) from an urban school showed improvement in attention, adaptive skills and reduced depressive symptoms, behavioural and internalizing symptoms after three months yoga intervention (Steiner, Sidhu, Pop, Frenette, & Perrin, 2013). A study on 54 children with eating disorder showed decreased in anxiety and depression score after 8 weeks of yoga intervention (Carei, Fyfe-Johnson, Breuner, & Brown, 2010).

Yoga based climbed up program on 69 students with ADHD showed improvement in the performance impairment scores after six weeks and were sustained through 12 months. Improvement in Vanderbilt scores was also observed by the parents (Mehta et al., 2012). Another study on 22 children with ADHD, who underwent 8-week mindfulness training showed a significant reduction in ADHD behaviour and increase in mindful awareness from pre to post test and from pre- to follow-up test (Van der Oord, 2012). Study on 40 Iranian children with ADHD showed a decrease in the child symptoms inventory score of the experimental group after 16 sessions (within two months) of yoga program (Abadi, Madgaonkar, & Venkatesan, 2008). In contrast, there was significant improvement from pre to post found in the control group (20-sessions of cooperative activities), but not the yoga group (20-sessions of Yoga) on three CPRS subscales: Hyperactivity, Anxious/Shy, and Social Problems which was studied in 21 ADHD children (Jensen & Kenny, 2004).

Yoga therapy showed the beneficial effect of increasing imitation, cognitive skills, social-communicative behaviours, increased skills in eye contact, non-verbal communication and receptive skills to verbal commands related to a spatial relationship in children with autism

spectrum disorder (ASD) (Radhakrishna, 2010; Radhakrishna, Nagarathna, & Nagendra, 2010). A 16-week daily classroom wide yoga intervention showed a significant impact on key classroom behaviours among children with ASD (Koenig, Buckley-Reen, & Garg, 2012). Behavioral Assessment System changed significantly in 24 children with ASD after 8-week multimodal yoga, dance, and music therapy program based on the relaxation response (Rosenblatt et al. 2011).

Forty-five children with a mild, moderate, and severe degree of mental retardation, showed improvement in IQ, social adaptation and locomotors skills in the yoga group after receiving training for one academic year (nine-month intervention) as compared with the control group (Uma, Nagendra, Nagarathna, Vaidehi, & Seethalakshmi, 2008). An RCT on 30 mentally retarded (MR) girls, underwent training for eight weeks and showed significant improvement in static balance, dynamic balance and gait significantly (Parisa, Yahya, & Reza, 2015). Sixty days of *pr nay ma* practice found effective in the fine motor coordination performances on five intellectually impaired children (Singh & Singh, 2014).

Table 2.6 Yoga on children with psychological abnormalities

First author (year)	Samples Size (total and group wise)	Age range/gr ades	Yoga group intervention	Control group intervention	Outcome measures	Results	Strength	Limitations
Steiner (2013)	41 children with EBD from an urban school	8-11 years	Yoga intervention (twice per week for 3months)	No intervention	Attention, adaptive skills, depressive, behavioral, and internalizing symptoms	Teachers reported improved attention, adaptive skills and reduced depressive symptoms, behavioral symptoms and internalizing symptoms.	Intervention given in small groups (7–10 students)	No RCT
Mehta (2012)	69 students with ADHD (N = 55).	6- 11 years	Twice weekly 25 minutes of yoga and meditation, followed by 30-minute play therapy, and a 5-min discussion/ feedback from the children.	No control group	Vanderbilt questionnaires	-The performance impairment scores for ADHD students assessed by teachers improved by 6 weeks and were sustained through 12 months in 46 (85%) of the enrolled students. -The improvements in their Vanderbilt scores assessed by parents were also seen in 92% .	Intervention was for long period (one year)	-Questionnaire was not validated in India -No control group - small sample size
Van der Oord, (2012)	N=22,Children with ADHD (Mindfull treatment group, n=11, WLC, n=11)	8–12 years	8-weeks mindfulness training	Wait list control	-Disruptive Behavior Disorder Rating Scale -Parenting Stress Index -The Parenting Scale -Mindfulness , Attention and Awareness Scale -The ADHD Rating Scale	-No significant changes between wait-list and pre-test. -Significant reduction of parent-rated ADHD behavior of themselves and their child. -Significant increase of mindful awareness and reduction of parental stress and over reactivity from pre-to follow-up test.	A quasi-experimental waitlist control	-a pilot study -small sample size -No active RCT -Teachers rated the child's behavior, but were not actively involved in the treatment.

Abadi (2008)	40 Iranian children with ADHD (Yoga: 20, Control group 20)	9-12 years	Yoga program for 16 sessions within two months	No intervention	The Child Symptoms Inventory (CSI-4)	Decrease of mean CSI-4 score of the experimental Group	-Cluster sampling - Adequate Sample size - duration of the treatment is effective -Consistency in student's attendance	No follow study
Jensen (2004)	N=21 ADHD Children, (YG: 11 and CG: 8)	8-13 years.	20-sessions of Yoga	20-sessions of cooperative activities	CPRS: Oppositional, GIEL, GIT, Global Index Restless/ Impulsive and ADHD Index.	Significant improvement was found in CG, but not in YG on 3 CPRS subscales: Hyperactivity, Anxious/Shy & Social Problems	Targeted group	-Small sample size, -Study was under powered
Carei (2010)	N=54, (50 girls and 4 boys) with eating disorder Yoga with standard care: 26 and standard care: 27	11-21 years	one hour of individualized yoga plus standard care, for 8 weeks and 1 month follow up	Only standard care for 8 consecutive weeks and 1 month follow up	EDE, BMI, BDI, STAI, and Food Preoccupation questionnaire.	Decrease EDE scores after 12 weeks in YG. Both groups maintained current BMI levels and decreased in anxiety and depression over time.	Individualized yoga was given -follow up was done	-limited sample of participants -may not generalize to inpatient or community samples.
Koenig (2012)	N= 49 ASD children,	8-12 years	Daily Yoga for 16 weeks	Routine activities	- Maladaptive behavior -Aberrant Behavior Checklist	Daily classroom wide yoga interventions have a significant impact on key classroom behaviors among children with ASD.	Manualized yoga program, targeted population	-Not a RCT
Rosenblatt (2011)	N=24 children ASD	3-16 years	8-week multimodal yoga, dance, and music therapy program based on the relaxation		Behavioral Assessment System for Children, Second Edition (BASC-2) and	BASC-2 changed significantly (p=0.003).	Standard measures used	-Not enough data were obtained -No relationship between

			response (RR)		the Aberrant Behavioral Checklist (ABC).			number of sessions attended and treatment outcome - Not a RCT
Radhakrishna (2010)	N=12 with ASD, 6 in each group	8-14 years	IAYT and applied behavior analysis(ABA); 5dys/week for 10-months	Controls, who only received ABA	Imitation and other skills, and behavior	IAYT may offer benefits as an effective tool to imitation, cognitive skills and social-communicative behaviors in children with ASD	Individualized IAYT for the participants	-Small sample size, -Parental involvement
Parisa (2015)	30 MR girls experimental and control groups. In each gr, n=15		8 weeks; 3sess /wk; 1hr/sess with 10 replications for each exercise		Static balance, dynamic balance and gait	-Statistically significant in all variables in yoga group. - No significant changes in control group.		
Singh (2014)	5 mild intellectually impaired children	age 7 - 10 yrs	“Omkar-5min for 5days,LNB and RNB for 10 minutes, M-5min 60 days	No control group	Fine motor coordination abilities	Significant differences between mean/average time taken in performing the inserting pegs task in pre-test and post-test	RCT	Single group study
Uma (2008)	90 children; n=45 in both the Yoga and control groups		One academic year (5hr/ week) with an integrated set of yogic practices		IQ and social adaptation parameters	-Yoga group showed significant improvement in all variables as compared to control group.	RCT	No follow up result

Abbreviations: Yoga Group (YG), Control Group (CG), Emotional and behavioral disorder (EBD), Attention deficit and hyper active disorder (ADHD), Autism spectrum Disorder(ASD), Integrated approach to yoga therapy (IAYT), Conners' Parents Rating Scales (CPRS), Global Index Emotional Liability (GIEL), Global Index Total(GIT), Eating Disorder Examination (EDE), Body Mass Index (BMI), Beck Depression Inventory, State-Trait Anxiety Inventory, LNB- left nostril breathing, RNB- right nostril breathing, M- meditation,

3.10 SUMMARY OF THE LITERATURE REVIEW

The ample of available studies on children and adolescents have found yoga as an effective intervention with almost no adverse effects; which appears as a promising complementary therapy for these populations. In this same direction, scanty but the effectiveness of yoga interventions are also documented on orphans. Amongst available literature, majority of the studies had focused on psychological aspects and till today, no studies could found on the physical or cognitive parameters. There were also several methodological limitations including lack of randomization, single group, small samples, limited detail regarding the intervention, and statistical ambiguities, prevent the ability to provide definitive conclusions or recommendations. To the best of our knowledge, there are no published randomized controlled studies those have compared the effect of regular supervised practice of integrated yoga on physical, psychological and cognitive health of orphans. Hence this study was planned on this rationale of looking at these outcome parameters.

3.11 NEED AND SCOPE OF THE STUDY

Literatures on orphans highlighted the high magnitude of the developmental problems as reduced physical growth, decreased executive functions and social relationship, emotional and behaviour imbalance and higher anxiety and depression symptoms. But, a little evidence exists to support the effectiveness of different interventions intended to improve the health and well-being of the orphaned and vulnerable children (Schenk, 2009). Yoga has already come up as a popular and preventive therapy for developmental delays, psycho-emotional problems and in improving cognitive functions in healthy children and adolescent but, there are limited studies documented the role of yoga on well-being of orphans or socially deprived children. To full fill this gape, the

present randomized controlled trial was proposed to investigate the effect of yoga on the physical and psychosocial health of orphans.