

## **II. REVIEW OF LITERATURE**

The literature about the current research is elaborately reviewed in such a way that it demonstrates a familiarity with the body of knowledge, establishes the credibility of the research, shows the path of prior research and how the current study was linked to it and thereby indicates the directions for future research. The reviews are presented under the following head.

- A. Depression, Anxiety and Stress among school-going adolescents - Aetiology, Symptoms, and Effects**
- B. Critical relationship between Depression, Anxiety and Stress**
- C. Prevalent preventive intervention models to alleviate Depression, Anxiety and Stress**
- D. Theoretical framework of Cognitive Behavioural Therapy (CBT) and Stress Inoculation Training (SIT)**
- E. Conceptual framework of the study**

### **A. DEPRESSION, ANXIETY AND STRESS AMONG SCHOOL-GOING ADOLESCENTS - AETIOLOGY, SYMPTOMS, AND EFFECTS**

Among all the stages of development, adolescence is the period of life which is often regarded as a stressful period due to physical, psychological, and sexual changes and the presence of psychiatric disorders like depression, anxiety and stress. The onset of psychiatric disorders at this stage of life is a matter of concern (Kumar et al., 2019).

The environment that these adolescents live in is physically, mentally, emotionally, socially and morally dynamic and challenging, which necessitates them to possess effective mechanisms to meet everyday stress (Spinella, 2001). Approximately, 20% of adolescents have a diagnosable mental health disorder. Furthermore, many mental health disorders are first present during early adolescence (Kessler et al., 2005).

India being the second highest populous country in the world, has been estimated that the number of people in need of mental health services is as high as 150 million (Lahariya, 2018). An earlier study by Lahariya et al. (2010) concluded that the problems of access to adequate mental health care services are compounded by the lack of adequately qualified mental health professionals and the inaccessibility to treatment, particularly outside major urban cities.

Mental health problems seem to have increased considerably among adolescents in the past 20-30 years. The rise has been driven by social change, including disruption of family structure, growing youth unemployment, and increasing educational and vocational pressures (Michaud and Fombonne, 2005). According to Kai-wen (2010), students at this level may sometimes experience incompatibility of their mental development with their physical changes or social environment and thus suffer from problems arising from inadequate adaptation. These problems may further cause psychological troubles and may even induce deviant behaviour. Due to physical, psychological, and sexual changes, the presence of psychiatric disorders such as depression, anxiety and stress at this stage of life is a matter of concern.

Depression is a mental illness characterized by a persistent feeling of sadness and loss of interest. It can also bring feelings of hopelessness and worthlessness. Depression can affect your thoughts, behaviour, emotions, physical health, and ability to function. Depression is a mood disorder that causes a persistent feeling of sadness and loss of interest (Chand and Arif, 2023). According to the Cambridge English Dictionary (2018), anxiety is defined as an uncomfortable feeling of nervousness or worry about something that is happening or might happen in the future. Anxiety disorders are characterised by excessive fear and worry and related behavioural disturbances. Symptoms are severe enough to result in significant distress or significant impairment in functioning. There are several different kinds of anxiety disorders, such as generalised anxiety disorder (characterised by excessive worry), panic disorder (characterised by panic attacks), social anxiety disorder (characterised by excessive fear and worry in social situations), separation anxiety disorder (characterised by excessive fear or anxiety about separation from those individuals to whom the person has a deep emotional bond), and others (WHO, 2022). Stress can be defined as a state of worry or mental tension caused by a difficult situation. Stress is a natural human response that prompts us to address challenges and threats in our lives. Everyone experiences stress to some degree. The way we respond to stress, however, makes a big difference to our overall well-being (WHO, 2023).

About 20% to 30% of adolescents have one major depressive episode before they reach adulthood. For a quarter of individuals with mood disorders like depression; these first emerge during adolescence. About 50% to 75% of adolescents with anxiety disorders and impulse control disorders (such as conduct disorder or attention-deficit/hyperactivity

disorder) develop these during adolescence. Altogether, the existing mental health problems become more complex and intense with children's transition into adolescence (Rushton et al., 2002).

It is understood that individuals experience stress in their lives (Scott, 2019). Stress is a very uneasy feeling that every individual goes through in his/her life. During adolescence, they imbibe both positive and negative thoughts and behaviours from their parents and environment. The choice they make in this phase is very much dependent upon the upbringing they get and expectations from family, society, peers, and more importantly their own "Self". The problem arises when adolescents are unable to cope with stressful situations and end themselves in a distressed state of mind. In this distressed situation, they indulge themselves in anti-social and self-destructive activities (Huli, 2014). With this backdrop, the literature was collated to understand the triggers of depression, anxiety and stress among early adolescents, the signs and symptoms experienced and behaviour manifested in turn, and the impact that these mental disorders make in their day-to-day lives. Accordingly, the aetiology, symptoms, and effects of DAS are presented below.

#### **a. Depression**

Depression – Let's Talk was the slogan for World Health Day (2017) and the World Health Organization published "Depression in India – Let's Talk" looking specifically at the nature and effects of depression in India. According to this document, 'Depression is a major public health problem in India, contributing to significant morbidity, disability as well as mortality, along with significant socioeconomic losses'. This document further explains the causes of depression and its close link with suicide. It also talks about the stigma associated with and the impact of depression.

Depression is a common mental disorder. It involves a depressed mood or loss of pleasure or interest in activities for long periods of time. Depression is different from regular mood changes and feelings about everyday life. It can affect all aspects of life, including relationships with family, friends and community. It can result from or lead to problems at school and at work (World Health Organization, 2023) It's a common but serious disease that can take away a person's ability to enjoy life and cause a decline in the capacity to undertake even the simplest daily tasks. Other than its chronic nature, symptoms associated with this mental disorder are often recurring and life-threatening.

Depressive disorders are among the most common mental health problems affecting around 45.7 million people in India and a major contributor to DALYs (Disability-Adjusted Life-Years) (Sagar et al., 2020).

Depression is a major contributor to the global burden of disease and affects people in all communities across the world and 450 million people suffer from one or the other type of depressive disorder (Umadevi et al., 2011). The prevalence of depression in children is relatively low (<1% in most studies) with no sex differences, and then increases considerably through adolescence with a one-year prevalence exceeding 4 to 5% from early to late adolescence (Thapar et al., 2012). Depression also leads to serious social and educational impairments (Fletcher, 2010) and is associated with an increased rate of smoking, substance abuse and obesity (Keenan-Miller et al., 2007).

Although mental health status among adolescents is well known in other countries, little is known about the magnitude of depression and associated factors among Indian adolescents (Singh et al., 2022). In the Indian context, a large sample survey with rigorous methodology reported an overall prevalence of 15.9% for depression (Poongothai et al., 2009). An estimated 3.8% of the population experience depression, including 5% of adults (4% among men and 6% among women), and 5.7% of adults older than 60 years. Approximately 280 million people in the world have depression Global Health Data Exchange (GHDx, 2023). Studies done in primary healthcare settings in India have found depression in 21% to 84% of the cases (Pothen et al., 2003). About the epidemiology of depression in children and adolescents in a community sample from south India, Srinath et al. (2005) reported a prevalence of 0.1% in the 4-to-16-year age group. Another study from north India reported an annual incidence rate of 1.61 per 1000 children in a community-based study on school children (Malhotra et al., 2009).

Adolescents aged 10 to 14 years are understudied and this is a difficult age group to reach. Thus, their needs are distinct from those aged 15-19 years (WHO, 2022). Globally, 34% of adolescents aged 10-19 years, are at risk of developing clinical depression. Practitioners are highly encouraged to prioritize depression screening and intervention implementation for individuals in this age group (Shorey et al., 2022). Thus, there is a need for a better understanding of the factors underlying depression among adolescents. Given development aspects, the first onset of depression can occur at any time. However, the diagnoses of adolescent depression are relatively rare (Egger and Angold, 2006), although

many preadolescents including pre-schoolers have significant internalizing symptoms (Gross et al., 2006). Most diagnosed depression during adulthood is found to have first appeared in adolescence (Kessler et al., 2005). Adolescent depressions are noteworthy for several factors. One is the increasing rates of adolescent depression in recent years, the second is the aetiology being substantially psychosocial, with significant cultural shifts creating stressful experiences and the third is the reduced resources contributing to depressive experiences (Jha et al., 2017)

The recognition, evaluation, and treatment of depression are the highest priorities in adolescent mental health. Epidemiological studies suggest that at a point in time, 8% to 10% of adolescents have severe depression (WHO, 2017). Depression is categorized not only if the victim has negative thoughts, moods, and behaviours but also if there are signs of specific changes in bodily functions. Depression is a heterogeneous disorder often mistaken for a single mental illness. There are indeed diverse forms of adolescent depression that can either be mild or extremely severe conditions and are explained below:

**Types of depression:** The different types of depression are reviewed below.

**Major Depressive Disorder (MDD):** This is the most serious form of depression. It is estimated that 13% of teens, ages 12 to 17, experienced at least one episode of major depression in 2017, according to the reports of the National Institute of Mental Health published in 2018. Younger children have about equal rates of depression based on gender. After puberty, however, girls are twice as likely to be diagnosed with depression (Albert, 2015). Symptoms of major depressive disorder include persistent sadness and irritability, talk about suicide, a lack of interest in enjoyable activities, and frequent reports of physical aches and pains. The majority of these symptoms normally are present nearly every day and result in significant distress and impaired social life and school performance (American Psychiatric Association, 2013). Treatment usually involves therapy and may include medication.

**Bipolar Disorder:** Bipolar disorder is characterized by episodes of depression followed by periods of mania or hypomania (a less severe form of mania). Both the depressive and manic states will last anywhere from a couple of weeks to many months. Symptoms of mania include a reduced need for sleep, difficulty focusing, and a short temper. During a manic episode, a teen is likely to talk fast, feel very happy or silly, and be willing to engage in risky behaviour. Many teens engage in high-risk sexual behaviour during a

manic episode (Obo et al., 2019). Teens with bipolar disorder will likely experience significant impairment in their daily functioning. Their severe mood changes interfere with their education and friendships.

***Persistent Depressive Disorder (Dysthymia):*** Persistent depressive disorder (dysthymia) is a low-grade, chronic depression that lasts for more than a year. Teens with dysthymia are often irritable and they may have low energy, low self-esteem, and feelings of hopelessness. Their eating habits and sleeping patterns may also be disturbed. Frequently, dysthymia interferes with concentration and decision-making. It's estimated that 11% of teens, ages 13 to 18, experience dysthymia (National Institute of Mental Health, 2018). Although dysthymia isn't as severe as major depression, the long duration can take a serious toll on a teen's life. It can interfere with learning, socialization, and overall functioning. Dysthymia makes a teen more susceptible to other mood disorders later in life.

***Adjustment Disorder with Depressed Mood:*** An adjustment disorder occurs in response to a life event. Moving to a new school, the death of a loved one, or dealing with a parents' divorce are examples of changes that can spur an adjustment disorder in teens. Adjustment disorders begin within a few months of the event and may last up to six months (Patra and Sarkar, 2013). Although brief in nature, adjustment disorders can interfere with sleep, school work, and social functioning.

**Symptoms of depression:** The National Institute of Mental Health (2003) as cited by Iyer and Khan (2012) has listed the common signs and symptoms of adolescent depression which are given below:

- ✓ Persistent sadness, anxious or empty mood,
- ✓ Feelings of hopelessness, pessimism,
- ✓ Feeling of guilt, worthlessness, helplessness,
- ✓ Loss of interest or pleasure in hobbies and activities that you once enjoyed, including sex,
- ✓ Insomnia, early-morning awakening or oversleeping,
- ✓ No appetite and weight loss or overeating and weight gain,
- ✓ Decreased energy, fatigue, being slowed down,
- ✓ Thoughts of death or suicide, suicide attempts,
- ✓ Restlessness, irritability, difficulty concentrating, remembering or making decisions and

- ✓ Persistent physical symptoms that do not respond to treatment, such as headaches, digestive disorders and chronic pain.

**Aetiology of Depression:** It's not known exactly what causes depression, but a variety of issues may be involved. One of the top healthcare corporations named WebEd (written by Bruce and reviewed by Brennan, 2022) had published the common causes of depression among adolescents as given below:

**Brain chemistry:** Neurotransmitters are naturally occurring brain chemicals that carry signals to other parts of your brain and body. When these chemicals are abnormal or impaired, the function of nerve receptors and nerve systems changes, leading to depression.

**Hormones:** Changes in the body's balance of hormones may be involved in causing or triggering depression.

**Inherited traits:** Depression is more common in people whose blood relatives - such as a parent or grandparent - also have the condition.

**Early childhood trauma:** Traumatic events during childhood, such as physical or emotional abuse, or loss of a parent, may cause changes in the brain that increase the risk of depression.

**Learned patterns of negative thinking:** Teen depression may be linked to learning to feel helpless - rather than learning to feel capable of finding solutions for life's challenges.

**Personal and environmental factors:** Many personal factors increase the risk of developing or triggering teen depression, including: Having issues that negatively impact self-esteem, such as obesity, peer problems, long-term bullying or academic problems; Having been the victim or witness of violence, such as physical or sexual abuse; Having other mental health conditions, such as bipolar disorder, an anxiety disorder, a personality disorder, anorexia or bulimia; Having a learning disability or attention-deficit/hyperactivity disorder (ADHD); Having ongoing pain or a chronic physical illness such as cancer, diabetes or asthma; Having certain personality traits, such as low self-esteem or being overly dependent, self-critical or pessimistic; and Abusing alcohol, nicotine or other drugs

**Family history and issues with family:** Having a parent, grandparent or other blood relative with depression, bipolar disorder or alcohol use problems makes an individual vulnerable to depression (Williams et al., 1995). Moreover, the death of a family member

by suicide could trigger depression. Teenagers in a family with major communication and relationship problems are more prone to depression. All the more experiencing recent stressful life events, such as parental divorce, or the death of a loved one also triggers depression.

Thus, depression is a serious condition and also a deep concern among school-going adolescents. The development of symptoms of depression is likely due to a combination of many factors. So, it is very important to understand the effects, possible triggers, and treatments in the form of preventive intervention as the period of early adolescence is considered to be the onset phase. This understanding provides essentials for promoting the overall well-being of adolescents. Studies should also evaluate the cost-effective models of preventive intervention which can be easily used in the primary care setting to effectively prevent the onset of depression in the present and the future.

#### **b. Anxiety**

Anxiety is an uncomfortable experience characterised by emotional (e.g., unease, distress), cognitive (e.g., fears, worries, helplessness), physiological (e.g., muscle tension) and behavioural (e.g., avoidance) changes. Anxiety when excessive or developmentally inappropriate, causing significant distress and/or functional impairment can be classified as an anxiety disorder. Although rarely recognised, too little anxiety might also be considered ‘disordered’ (Frick et al., 1999 cited by Vallance and Fernandez, 2016).

Shri (2010) by citing the Diagnostic Statistical Manual (DSM IV-TR, 2000) differentiated anxiety and anxiety disorders in simpler terms – ‘Anxiety is a subjective feeling of unease, discomfort, apprehension or fearful concern accompanied by a host of autonomic and somatic manifestations. It is a normal, emotional, reasonable, and expected response to real or potential danger. However, if the symptoms of anxiety are prolonged, irrational, disproportionate, and/or severe; occur in the absence of stressful events or stimuli; or interfere with everyday activities, then, these are called anxiety disorders.’

American Psychiatric Association (2022) has stated that anxiety is a normal reaction to stress and mild levels of anxiety can be beneficial in some situations by alerting an individual to dangers and helping him/her prepare and pay attention. Whereas, anxiety disorders differ from normal feelings of nervousness or anxiousness and involve excessive fear or anxiety are among the most common mental, emotional, and behavioural problems and have a substantial negative impact on quality of life.

Core features include excessive fear and anxiety or avoidance of perceived threats that are persistent and impairing. Anxiety disorders involve dysfunction in brain circuits that respond to danger. The risk for anxiety disorders is influenced by genetic factors, environmental factors, and their epigenetic relations. Anxiety disorders are often comorbid with one another and with other mental disorders, especially depression, as well as somatic disorders. Such comorbidity generally signifies more severe symptoms, greater clinical burden, and greater treatment difficulty (Penninx et al., 2021).

Teenager anxiety is a common psychiatric disorder. It is estimated that more than 7% of adolescents in the age range of 13 to 17 years have been diagnosed with anxiety, and more than 36% of children with behavioural problems have been diagnosed with anxiety disorders (Ghandour et al., 2019). The National Institute of Mental Health estimates that the prevalence of anxiety disorders in adolescents of 13 to 18 years of age is 1 in 4, and the prevalence of severe anxiety is about 1 in 17 (Walter et al., 2020).

The increased risk for the development of anxiety is likely due in part to the numerous transitions during the adolescent period. As a result, adolescence is a particularly important time regarding the development of psychopathology. This period often sets the stage for future beliefs about the self and others, developmental concerns, and interpersonal relationships, which all are factors that are important to the development of anxiety. Therefore, an accurate understanding of the vulnerability factors and the features of anxiety disorders is important for mental health professionals (Grant, 2013).

The prevalence, and epidemiology of anxiety disorders appear different in the adolescent population as compared to the adult population. Furthermore, studies have shown that anxiety disorders with the highest burden are found in both male and female adolescents and young adults (Baxter et al., 2014). Moreover, the most frequent anxiety disorders during adolescence are social phobia and generalised anxiety disorder, as compared to adulthood where the most common clinical disorders concern specific phobias. Concerning social phobia, studies indicate that this trouble is a highly prevalent, persistent and impairing psychiatric disorder among adolescents (Burstein et al., 2011). In addition, the first physical, cognitive and behavioural manifestations of social anxiety disorder often occur during adolescence.

**Types of anxiety disorders:** There are many different types of anxiety disorders that teenagers can experience. Some of these include social anxiety disorder, generalized

anxiety disorder, specific phobias, panic disorder, agoraphobia, and separation anxiety disorder (Grant, 2013). In addition, obsessive-compulsive disorder is also added to the list (Chiu, 2016). Prevalence rates are approximately 20% for specific phobias, 9% for social anxiety disorder, 8% for separation anxiety disorder, and 2% each for agoraphobia, panic disorder, and generalized anxiety disorder (Walter et al., 2020).

Table 1 below illustrates the source of threats of each of the anxiety disorders specified above and also explains the common signs and symptoms experienced.

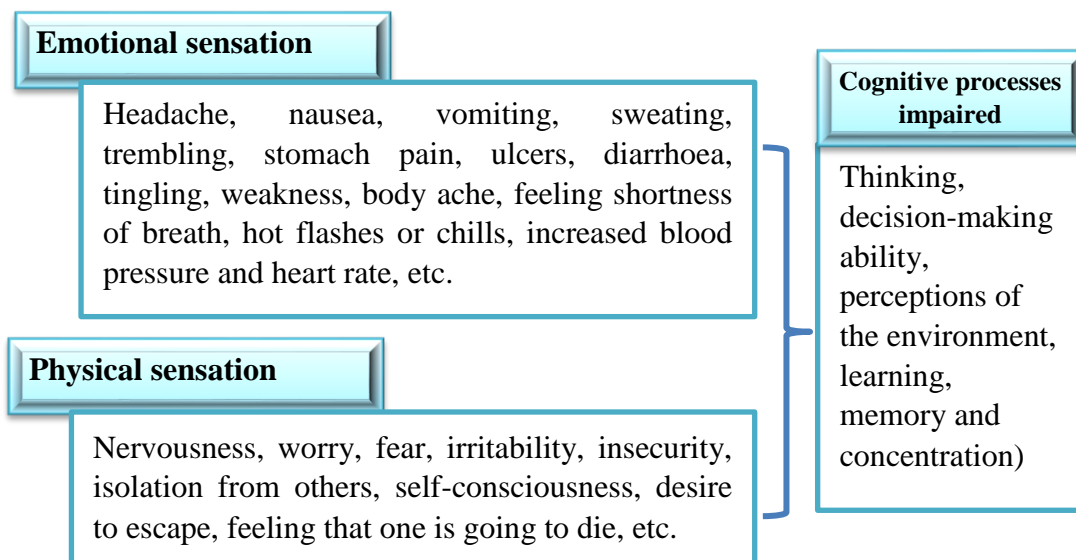
**Table I**  
**Anxiety disorders among adolescents – Source of threat and symptoms**

<b>Disorder</b>	<b>Source of Threat</b>	<b>Common Presentations</b>
Social Anxiety Disorder	Fear of humiliation or embarrassment in situations involving performance or scrutiny by others	Avoids raising the hand or speaking in class; avoids eye contact; avoids ordering food in restaurants; avoids talking on the phone, texting, or e-mailing peers; refuses to initiate conversations with peers
Generalized Anxiety Disorder	A general feeling of dread or unease associated with the perception of uncontrollability and unpredictability about several events or activities such as school performance, health, financial matters or family problems	Constantly seeks reassurance; has disrupted sleep, fatigue, irritability, restlessness, and/or difficulty focusing due to worries
Specific Phobia	Marked fear or anxiety about a specific object or situation (e.g., animals, natural environment, needles, transportation)	Has intense fear and avoidance of insects, animals, storms, blood, needles, medical procedures, subways, planes, or buses
Panic Disorder	Fear of recurrent panic attacks or their consequences (e.g., “going crazy,” “dying,” “losing control”)	Avoids places where panic attacks have occurred before; avoids activities that create strong physical sensations (e.g., heavy exercise)

<b>Disorder</b>	<b>Source of Threat</b>	<b>Common Presentations</b>
Agoraphobia	Fear of places where immediate escape may be embarrassing or difficult or help not available	Avoids leaving home or relies on an adult to leave home; avoids crowded and enclosed spaces
Separation Anxiety Disorder	Excessive fear or anxiety about losing major attachment figures or persistent worry about an untoward event (e.g., getting kidnapped, getting lost) that will cause separation from major attachment figures	Co-sleeps; follows caregiver around the home; avoids being in a separate room from a caregiver; repeatedly calls caregiver when separated; avoids school, and other activities requiring separation
Obsessive-compulsive disorder	Fear of intrusive and unwanted thoughts, urges, or images	Constantly worries about dirt or germs; fears a danger to a loved one or self; practices ritualized washing; arranges or orders objects; repeats, rereads, or rewrites; checks and rechecks; counts objects such as number of steps

**Symptoms of Anxiety Disorders:** The subjective experience of anxiety typically has two components namely the physical component and emotional component which affect the cognitive processes of the individual (Rang et al., 2007) and is represented in Figure 1.

**Symptoms experienced by adolescents due to anxiety disorders**



**Figure 1**

**Aetiology of anxiety disorders:** Anxiety disorders represent a heterogeneous group of disorders, probably with no single unifying aetiology. Various psychodynamic, psychoanalytic, behavioural, cognitive, genetic and biological theories have been proposed to explain the aetiology and pathophysiology of anxiety disorders as proposed by Cates et al. (1996). These are said to be bio-psychosocial factors that contribute to anxiety disorders (Wong, 2006). Table II below shows the bifurcation of the factors.

**Table II**  
**Aetiology of anxiety disorders**

<b>Biological causes</b>	<b>Psychological causes</b>	<b>Social causes</b>
<ul style="list-style-type: none"> <li>✓ Heredity</li> <li>✓ Neurotransmitter imbalance</li> <li>✓ Illness</li> <li>✓ Medications</li> <li>✓ Nutritional factors</li> </ul>	<ul style="list-style-type: none"> <li>✓ Personality traits</li> <li>✓ Low self-esteem</li> <li>✓ Cognitive dissonance</li> <li>✓ Negative emotions</li> <li>✓ Perception of situational factors</li> <li>✓ Inter and/or intra-personal conflicts</li> <li>✓ Developmental crises</li> </ul>	<ul style="list-style-type: none"> <li>✓ Adverse Life Experiences</li> <li>✓ Lack of social support</li> <li>✓ Work stress</li> <li>✓ Lack of social skills</li> <li>✓ Changing values</li> <li>✓ Conflict of societal norms</li> <li>✓ Natural calamities</li> <li>✓ Terrorism</li> </ul>

Anxiety could be problematic to students who require concentration to benefit from learning. Anxiety disorders have an earlier age of onset relative to other internalizing disorders among youths (Ghandour, 2019) and are associated with impairment in academic, social, and family functioning (Cataldo, 2021). Left untreated, anxiety disorders among youths tend to have a chronic and unremitting course, persisting into adulthood. In addition, adolescents with anxiety disorders are at an increased risk for later anxiety disorders, depression, substance dependence, and truncated educational attainment as young adults (Racine et al., 2021). Overall, the negative consequences associated with anxiety disorders in children and adolescents highlight the need for effective identification and intervention.

**c. Stress**

Adolescence is a transition period from childhood to adulthood, where various psychosocial and physiological changes make them more prone to psychological stress (Washington, 2009). Psychological stress is an unpleasant subjective feeling perceived when an individual's situational demands exceed their adaptive capacity

(Nagabharana et al., 2021). Psychological stress can also precipitate adverse mental health outcomes such as anxiety, depression and suicidal ideations (Sheth et al., 2017).

Adolescence is a period of increased stress perception and reactivity (Casey et al., 2010). A rapid change in physical, psychological, physiological and social aspects during the transitional adolescent phase may heighten stress reactivity. Abnormalities due to stress in physiology and psychological status during this transitional phase are likely to set lifestyle and risk trajectories in motion for future disease development.

Studies done after the year 2000 have shown that the prevalence of stress among Indian adolescents is on the rise and varies from 13% to 45% (Talwar et al., 2014). Various studies suggest the rising prevalence of stress among adolescents and its increasing influence on adolescent health (Kumar and Talwar, 2014; Aggarwal and Berk, 2015). During the past five decades, several types of research have been conducted to measure the sensitivity of stress among adolescents. It is generally believed that factors in the family, student and school environment may influence stress (Sun et al., 2013). When asked, adolescents often report that school (e.g., academic demands) is one of the major sources of stress (Ostberg et al., 2015). But also social stressors, such as conflicts with parents, fitting in with peers and handling romantic relationships increase in both frequency and relevance in adolescence, especially for girls (Stange et al., 2014).

Stress is a term commonly used to describe feelings of tension or exhaustion usually associated with work overload or overly demanding work. Stress is a natural phenomenon in an individual's daily life (Mathewman et al., 2009). Stress is a concept that cannot be explained using a static definition thus it is important to be aware of different descriptions that exist in both recent and seminal literature. Delahaij et al. (2011) explain stress using a bio-psychosocial approach, suggesting that stressful reactions affect the emotional, physiological and cognitive state of an individual.

World Health Organization (2023) mentioned that stress can be defined as a state of worry or mental tension caused by a difficult situation. Stress is a natural human response that prompts us to address challenges and threats in our lives. Everyone experiences stress to some degree but the way an individual responds to stress, however, makes a big difference to the overall well-being. Stress affects both the mind and the body. A little bit

of stress is good and can help to perform daily activities. Too much stress called distress can cause physical and mental health problems. WHO (2023) has also affirmed that the high levels of anxiety and depression among adolescents are part of a national pattern of significantly increasing distress.

Stress is a choreographed state of events, not a mere psychological term, and is encountered by all individuals during a period of illness. It differs fundamentally from the fight-or-flight or acute stress response that occurs when facing a perceived threat, as first described by physiologist Walter Cannon in 1915. The acute release of neurotransmitters from the sympathetic and central nervous systems, as well as hormones from the adrenal cortex and medulla, pituitary and other endocrine glands, mediate the response to acute stress (Tan and Yip, 2018)

The phenomenon of stress is highly individualist in nature. Recent researchers demonstrate that individual responses to stress differ according to the stressor and varying environmental and personal factors (Parikh et al., 2019). The individual differences may cause some to interpret the stressors as positive stress or Eustress (which stimulate them), while other experience negative stress or distress (which detracts from their efforts). These effects may be short-term and diminish quickly or they may last a long time (Deb et al., 2015).

Sources of stress for adults differ by extremity from those of adolescents; however, the coping mechanisms used to deal with these problems are relatively similar. Whilst major stressors for young people include school, family and peer relationships, Meyers (2018) survey on adolescents' stress reported worse mental health. Policymakers should be worried about rising adolescent stress, not only for the sake of adolescents' psychological health but for the health of the country.

**Types of stress:** Individuals, belonging to all age groups, communities, categories and backgrounds experience stress in their personal as well as professional lives. Stress has various positive aspects as well, but normally, when it is experienced in a major form, it has unfavourable effects on the overall quality of life of the individuals (Kapur, 2021). The different types of stress are stated as follows:

**Acute Stress:** Acute stress is characterized by an overwhelming sense of stress, fear, and panic, beginning after a traumatic or disturbing event. The severity of these symptoms is such that they impair a teen's ability to function and engage normally in everyday life

(Walker et al., 2020). However, this stress does not last long and can be alleviated with relaxation techniques.

**Chronic Stress:** Chronic stress is the type of stress that tends to occur among individuals regularly throughout their lives. This type of stress will have unfavourable effects on the physical and psychological health conditions of the individuals. Though not common among adolescents, there is a strong association between chronic stress and psychopathology in adolescence, with stress linked to depression, anxiety, and other internalizing and externalizing problems (Grant et al., 2004 as cited in Sheth et al., 2017)

**Emotional Stress:** Emotional stress can be more severe and painful as compared to other types of stress (Freshwater, 2018). When the expectations on them are too much within the school or family environment, or the individuals experience strenuous terms and relationships with other individuals, i.e. family members, relatives, and friends, they experience emotional stress. When this stress is experienced in a major form, it has adverse effects on the physical and psychological health conditions of adolescents.

**Battling Burnout:** A feeling of chronic stress that leads to emotional and physical exhaustion is a very guileless definition of burnout (Patel, 2020). Teenagers today are engaged in one or the other activities for 18 hours a day to maintain their marks in academics and to perform well in extracurricular activities. The tight schedule without consistent breaks makes them feel burnout and they continue battling the same forever.

**Physical Stress:** Physical stress is the stress that affects the physical health conditions of individuals. There are numerous causes of physical stress triggers. To name a few, various types of health problems and illnesses, wounds, injuries, infections, toxins, inadequate light, lack of electricity, fatigue, inadequate oxygen supply, deficiencies of essential nutrients, food allergies and sensitivities, unhealthy eating habits, dehydration, substance abuse, dental challenges, and musculoskeletal misalignments and imbalances (Types of Stress, 2021).

**Psychological Stress:** Psychological stress is the stress that takes place as a result of various types of psychological problems, i.e. anger, depression, trauma, anxiety and frustration. In the personal as well as academic lives of adolescents, they experience various types of situations, which enable them to feel psychologically stressed. When psychological stress is experienced in a major form, it has effects on the physical as well as psychological health conditions of the individuals.

**Symptoms of stress:** The symptoms which will help identify the stressful behaviours of adolescents based on Huli (2014) are:

- Irritability
- Lack of sleep at night time/trouble sleeping
- Inability to concentrate on academics and other extracurricular activities
- Having unexplained fears or increased anxiety.
- Withdrawal from family activities or peer relationships.
- Experiment with drugs and alcohol
- Neglect responsibilities
- Frequent complaints of headaches or stomach aches
- School refusal
- Poor appetite
- Low immunity
- Sudden changes in behaviour and
- Unexplained fatigue

**Aetiology of stress:** Adolescence has often been described as a period filled with stress and tension. Changes in the social environment as well as physiological ones provide wide opportunity to face potentially threatening events. A few triggers are explained below:

***The Biological Factors:*** Despite intense and frequent negative effects, this period has been hypothesized to explain increased rates of affective disorders, suicide and accidental death (Anjum et al., 2022). Yet some teens emerge from adolescence with minimal turmoil. It provides a neurobiological model for adolescence which proposes that an imbalance in the development of sub-cortical limbic (e.g. amygdala) relative to prefrontal cortical regions is a potential mechanism for heightened emotionality during this period. The presence of environmental factors may exacerbate the turmoil of adolescents.

***Cognitive factors:*** This is one of the important causes of stress as adolescents try to experience the world on their own. This is the phase of information gathering and experimenting that causes stress in them. According to Jean Piaget, an adolescent is capable of thinking like an adult at about the age of 16. He proposed that the basic process an adolescent uses to think does not change much beyond this stage and the stage is called formal operational thought (Santrock, 2011). It involves abstract thinking, hypothetical

thinking, interpropositional logic and reflective thinking. Added to the cognitive challenges pertinent to the age, adolescents try to experience both the real and virtual world in today's context. They are also bombarded with information both good and bad creating inquisitiveness to experiment with things around them. Their analytical and logical thinking, many times because of the immature thought process leads them to fall trap of risky and deviant behaviour (Huli, 2014)

**Social Factors:** This is also one crucial stressor as adolescents prefer to spend time outside of family and demand freedom. As proposed in one of the studies; in the relationship between adolescents and their parents a central theme is often that of testing limits. Most teen parents' arguments concern the timing of rights and responsibilities (Hartup 1983 cited by Huli, 2014). In this phase, parents can expect less obedience and more resistance that is because the adolescents can think of alternatives to their parents' rules. The crucial concern during the process of social development is first within the family and then within society. A healthy family would generate a healthy adolescence period. And troubled family could endanger the parent-child relationships resulting in deviant behaviour (Smith, 2022)

**Peer Factors:** A peer group membership assumes more importance during adolescence than at any other time of life. A peer group can provide a refuge and a source of support for youngsters in conflict with their families. Moreover, being part of a clearly defined group can help answer the burning question, "Who am I". For these and other reasons, adolescents spend a great deal of time with other adolescents. One study which used beepers to contact adolescents at random times (Csikszentmihalyi et al., 1977 cited by Huli, 2014); found that they spend more time talking with peers than doing academic work or being alone. Research further states that the presence of peer pressure is a predictor for increased stress levels, anxiety and sleep issues (Anniko et al., 2019)

**Academic Factors:** Academic performance is the most common form of stressor among adolescents of all phases, ages and genders. This was largely driven by parental and teacher expectations, as well as personal ambitions. Adolescents expressed that parents were embarrassed, and disappointed and would "hate" them due to academic underperformance. Teachers were seen as providing excessive homework, which added to the pressure. Parents and teachers often resort to shouting, beating, and restricting extracurricular and recreational activities in a bid to improve adolescents' focus on academic performance and thereby boost future career prospects (Parikh et al., 2019).

**Family Factors:** Demanding autonomy, independence and privacy, desire to make individual decisions, parental control over career and other choices, disapproval of romantic relationships, and poor academic performance (Parikh et al., 2019) are the common family stressors seen among adolescents.

Hence, it could be inferred that adolescence is a phase of rapid physical growth and psychological development that is bound to create stressful events. Eustress are beneficial but not all adolescents consider challenging situations as a motivating factor, instead see the events as stressful. Hence learning appropriate coping skills to alleviate stress becomes crucial.

Overall, the collated literature portrays the prevalence of Depression, Anxiety and Stress (DAS) among school-going adolescents and its impact on their holistic living. Although risk factors for adolescent DAS can be categorized as biological, psychological or environmental the incidence of DAS among adolescents is of great concern because of the acute and lasting consequences connected with mental health disorders. Intervention measures to address exaggerated perceptions of DAS during this sensitive period may benefit their future health.

## **B. CRITICAL RELATIONSHIP BETWEEN DEPRESSION, ANXIETY AND STRESS**

The World Health Organization (2021) identified mental health as "essential to human health" in its plan for preventing, treating, and conquering mental health diseases (Al-Shehri et al., 2022). Although these standpoints are well realised and strategies in force, mental health issues remain the leading cause of disability and a significant public health concern worldwide due to illness evolution, treatment challenges, and growing incidence. Mental health is one of the most significant determinants of life quality and satisfaction. Poor mental health is a complex and common psychological problem among adolescent students in developed and developing countries (Pedrelli et al., 2015).

Wainberg (2017) has cautioned that mental health problems are the first cause of disability and a major public health issue worldwide due to disease progression, difficulties in therapeutic management, and increasing prevalence. Depression, Anxiety, and Stress (DAS), in particular, are crucial measures of mental health that, if left untreated, may severely impact people (Alharbi et al., 2019). Different psychological and psychiatric

studies conducted in multiple developed and developing countries during the past decades have shown that the prevalence of DAS is higher among students compared with the general population (Mayer et al., 2016). Global Burden of Disease Study (2017) in addition stated that DAS is a crucial indicator of mental health which, if untreated, can have a negative effect on individuals.

Depression, Anxiety, and Stress can be manifested in different forms; however, some common overt symptoms include loss of appetite, sleep disturbance, lack of concentration, apathy (lack of enthusiasm and concern), and poor hygiene (Ibrahim et al., 2013). Self-esteem, self-confidence, personality types, and loneliness can be associated with DAS among students. Students who have a lower level of self-esteem are more susceptible to developing anxiety and depression (Ratanasiripong, 2018). Other psychological factors such as the feeling of loneliness play important roles in increasing DAS risk factors (Kawase et al., 2008).

Studying DAS is particularly important among students who are future representatives and leaders of a country. DAS is not only prevalent among the student population but also persistent (Rao and Ramesh, 2015). By conducting a follow-up survey of students over two years, Zivin et al. (2009) demonstrated that more than half of students retain their higher levels of anxiety and depression over time. Globally, studies conducted on different samples of adolescent students have identified a moderate prevalence of DAS in this population which is a major health problem with long-term consequences (Bahhawi et al., 2018).

Rafati et al. (2017) also opined that a high prevalence of depression, anxiety, and stress among students may be due to the dual demands of academic as well as clinical requirements. A wide range of research among students has been conducted across the globe that reveals high levels and higher incidences of depression, anxiety, and stress (Bartlett et al., 2016).

The prevalence of DAS is most commonly ascribed to the developmental characteristics of adolescents, as these adolescents going through a transition from the protected life of a home environment to an independent life, may face challenges in their lives. The failure to adapt to this transition may cause depression, anxiety, and stress among them (Ahmed and Julius, 2015). However, the reason attributed to the persistent DAS owed to the tenacious risk factors that the adolescents were vulnerable to and the

abstinence of preventive interventional and treatment measures (Park et al., 2020). Currently, exposure to more vulnerable risk factors adds to the concern.

Depression, Anxiety and Stress appear by early adolescence; yet they rarely get any support for their mental health (Sarokhani et al., 2013). Depression can negatively impact many facets of a school student's life. It is a hazardous phenomenon, especially when accompanied by anxiety and stress. Studying DAS in school students is critical for overcoming these unpleasant symptoms and moving forward in their academic and intellectual lives (Choo et al., 2017). They also signalled inadequate primary care concerning the identification, prevention, and treatment of DAS at an earlier stage, even though DAS is a common phenomenon with a significant impact on the productivity of adolescents.

According to the American Psychiatric Association and the DMS-5, Depression is a common illness that negatively affects how a person feels, the way he/she thinks and how they act (Torres, 2020). Depression has been known as the first mental health priority among adolescents due to its high prevalence, recurrence, and ability to cause significant impairment (Malik et al., 2015). Anxiety is a natural reaction to stress. It can be a beneficial implication that often alerts us in dangerous situations, thereby increasing our readiness to act promptly. Nevertheless, anxiety disorders are different from feelings of nervousness or anxiousness and entail extreme fear or anxiety (Latiff et al., 2015). On the other hand, stress is a challenge or threat to well-being. It is a process in which environmental demands exceed an organism's adaptation capacity, lead to mental and biological changes, and expose people to risks. Stress is an essential part of life because its persistence may lead to various psychological problems such as involvement in high-risk behaviours (Watode et al., 2015).

To date, within published literature, various studies have reported a notable proportion of adolescents experiencing one or more mental disorders. For instance: a systematic review by Polanczyk et al. (2015) showed that the prevalence of mental disorders in children and adolescents in 27 countries was 13.4%. The prevalence of anxiety disorder was 6.5% and depressive disorder was 2.6%. Sandal et al.'s (2017) study among students of grades 9 to 12 attending public schools in India showed that 65.53% had depression (in mild-extremely severe forms), 80.85% suffered from anxiety (in mild-extremely severe forms), and 4.02% had stress (mild-extremely severe).

Singh and Bhatnagar (2016) in their study endorse the statement of Selye (1974) that there seems to be a coexistence of depression, anxiety, and stress in today's world. In fact, both stress and anxiety have theoretically and empirically been found to be so closely linked to performance, Complete freedom from stress is death, and stress and anxiety are as essential for life as blood pressure. It is the excess of both that becomes detrimental and when unable to handle often translates into pathology (i.e., stress disorders or anxiety disorders). On a similar note, depression is the common cold faced by one and all at some point in life. However, when it is not handled well it becomes overwhelming and the person experiences clinical symptoms of depressive disorder. DAS, hence, is prevalent in all populations, India being no exception. At all ages of life, people from various walks of life, and socioeconomic status experience DAS in varying shades and amounts. Moreover, these three negative states are talked about in cognizance together at all times.

Depression, anxiety, and stress seem to play a major role in today's world. From feeling helpless, lonely, and isolated to the crushing exhaustion that makes even the most simple of tasks so very hard, these problems create a living nightmare (Green, 2005). It seems that DAS was the most often used word in all spheres of life. Since the common man uses these words often, they are misinterpreted and misconstrued most of the time. Thus, it becomes imperative to understand that these three are not just psychiatric disorders or states rather they are felt experiences of discomfort and disease varying from person to person. The close relationship between symptoms of anxiety and depression and those of stress suggests that these disorders may share common etiological features (Hranov, 2007; Garber and Weersing, 2010).

According to the American Psychological Association (2020), anxiety and depression are both emotional responses leading to a very similar set of symptoms, including difficulty in sleeping, fatigue, muscle tension, and irritability. Stress is usually caused by an external factor and can be short-term, triggering anxiety and depression. Another study also showed that high or constant levels of stress during adolescence could contribute to the increased likelihood of conditions such as anxiety or depression (Romeo, 2013).

Students who experience higher depression, anxiety and stress in life reported a lower level of life satisfaction (Seo et al., 2018). A past study also revealed that more significant anxiety is associated with greater depressive symptoms (Boyraz et al., 2014),

where individuals exhibited greater self-criticism, hyper vigilance of cues triggered by disapproval from people in their surroundings, and feelings of being unworthy of being loved.

According to the American Psychological Association (APA), anxiety and depression are both emotional responses leading to a very similar set of symptoms, including difficulty sleeping, fatigue, muscle tension and irritability. Whereas stress is usually caused by an external factor and can be short-term, anxiety is persistent, even in the absence of a stressor (APA, 2020). Depression is characterized by a set of symptoms including a lack of interest in daily activities, significant weight loss or gain, sleep pattern alterations, lack of energy, loss of concentration, feelings of worthlessness or guilt and even recurrent thoughts of death or suicide (APA, 2020).

With the assumption that chronic stress in adolescents may cause anxiety and depression, a study by Wahab et al. (2013) aimed to determine the association between stressors and the prevalence of depression and anxiety. All stressors (academic, interpersonal, intrapersonal, teacher, learning/teaching, and social group) had a significant association with depression and anxiety ( $P < 0.001$ ). Multiple regression showed that both the intrapersonal-related stressor and learning/teaching-related stressor were 2.8 and 2.0 times more likely (Adjusted Odds Ratio [OR] = 2.8 [ $P < 0.001$ ] and OR = 2.0 [ $P = 0.002$ ], respectively) to cause depressive symptoms. On the other hand, the interpersonal-related stressor was 2.9 times more likely (Adjusted OR = 2.9,  $P < 0.001$ ) to cause anxiety.

Liu et al. (2023) explored the association between depression and anxiety symptoms among college students with a cross-sectional study design by surveying 1790 university students. Pearson correlation analysis showed that all symptoms of depression and anxiety of male college students were significantly positively correlated ( $p < 0.01$ ). At the same time, most of the depression and anxiety symptoms of female college students had a significant correlation, which provided the basis for the follow-up typical correlation analysis. The subsequent canonical correlation analysis concluded depression and anxiety symptoms of college students were significant.

Paudel et al. (2020) in a cross-sectional study conducted among 681 undergraduates from different academic institutions of Pokhara Metropolitan, Nepal using DASS-21 examined the relationship between the level of depression, anxiety, and stress and found a high positive correlation ( $p < 0.001$ ) between the three mental states.

Miron et al. (2019) in an attempt to explore if the presence of depression and anxiety has been linked to life stress, used questionnaires including the Perceived Stress Scale (PSS-10), the Generalized Anxiety Disorder Scale (GAD-7) and a reduced version of the Patient Health Questionnaire (PHQ-9) were sent via email to the University students of Barcelona. The correlations between scales were 0.76 for PSS and GAD scales, 0.72 for PSS and PHQ scales, and 0.69 for GAD and PHQ scales. The study concluded that young adults are more vulnerable than the general population, to the perception of stress and to the development of anxiety or depression.

Students are a special group of individuals who endure a vital transitory stage in which they are growing from an adolescent phase to a phase of adulthood; this can be one of the most stressful periods in an individual's life. Trying to adapt, maintaining good grades, planning for the future, and managing many things away from home often cause anxiety for a lot of aspiring students. To counter the response to such stress, few students tend to get depressed; they find that they cannot get hold of themselves together. The students may tend to easily cry, bunk classes, or isolate themselves from different groups without realizing that they are depressed. Many researchers have reported that depression, anxiety, and stress among students are common and frequent in different parts of the world (Ibrahim et al., 2013).

It is believed that anxiety and depression, according to the APA, as cited by Shehri et al. (2022) are both emotional responses that cause a comparable cluster of characteristics, such as sleep problems, exhaustion, muscular tightness, and restlessness. Unlike stress, which is generally brought on by an external influence and can be short-lived, anxiety persists even with no external stressor. A disinterest in regular activities, considerable weight or increase, sleeping pattern changes, decreased energy, inability to focus, feelings of hopelessness or regret, and even repeated thoughts of death or suicide are all indicators of depression.

Most high school students are at the stage of adolescence which forms a very important period in life, involving many physiological and psychological changes. This age group includes 10-19 years (United Nations Children's Fund, 2011) and profound transitions occur both at the individual and social levels which makes them particularly vulnerable to academic and psychological stress. Students with high-stress levels in academia were seen to exhibit signs of depression, anxiety, phobia, school refusals,

increased irritability, complaints, and reduced interest in school work (Reddy et al., 2017). The high expectations of academic achievement have created a very stressful environment that if left untreated, can be hazardous to their physical and mental health (Alharbi et al., 2019).

In India particularly, students are put under pressure to perform well in examinations which are taken as the marker of academic status and hence a qualification to make their way into further studies or profession. India has the world's largest national population of adolescents (243 million) which accounts for a quarter of the country's population. Worldwide up to 20% of adolescents in any given period experience a mental health problem most commonly depression or anxiety. In many settings, they even resort to suicide, a leading cause of death (WHO, 2003). Windarwati et al. (2022) also investigated the relationship between depression, anxiety, and stress (DAS) with the emergence of suicidal ideation in adolescents. Based on the findings, this study indicated that depression, anxiety, and stress had a significant and positive relationship with suicide ideation in adolescents.

Anxiety and depression are highly comorbid with each other, and together they are considered to belong to the broader category of internalizing disorders. Data for anxiety disorders are less current, but from 2001 to 2004, their 12-month lifetime prevalence was estimated to be 31.9% in adolescents (Kessler et al., 2005).

Across all psychiatric disorders, comorbidity is the rule, which is definitely the case for anxiety and depressive disorders, as well as their symptoms. With respect to major depression, a worldwide survey reported that 45.7% of individuals with lifetime major depressive disorder had a lifetime history of one or more anxiety disorders (Kessler et al., 2015). These disorders also commonly coexist during the same time frame, as 41.6% of individuals with 12-month major depression also had one or more anxiety disorders over the same 12-month period.

One common non-genetic risk factor associated with the development of anxiety and depression is current stress exposure (Etkin and Schatzberg, 2011). These findings are consistent with meta-analyses that reveal shared structural and functional brain alterations across various psychiatric illnesses, including anxiety and major depression (Goodkind et al., 2015). The effects of chronic, or long-term, stress can be harmful on their own, but they also can contribute to depression and anxiety (Cooper, 2021). Yet while

stress is normal, depression and anxiety are more serious and are ongoing conditions that can occur as a reaction to stress.

Many studies have proposed that anxiety and perceived depression are the most damaging negative states of mind. They are prevalent in people's daily lives and lead to serious mental health problems over time without valid interventions (Ren et al., 2016; Monzonís-Carda et al., 2021; Casey et al., 2022). However, the question remains how seemingly unavoidable negative emotions in daily life gradually deteriorate, resulting in emotional problems or obstacles for healthy individuals. Previous studies, mostly based on cross-sectional and cross-lag longitudinal methodologies, have indicated that perceived stress, anxiety and perceived depression are potential antecedents of mood disorders (Asmundson et al., 2020; García-Mieres et al., 2020; Armon et al., 2021), and show close associations with each other (Levine et al., 2019; Huang et al., 2021).

However, studies have focused only on the effect of major stress events and serious negative emotions, and these variables have rarely been proposed in short-term longitudinal cycles as a potential risk for mood disorders in daily life. In reality, it is the neglected daily trifles that shape our long-term psychological states. For example, daily chores better predict stress-related health issues than major life events (Miller et al., 2008). The accumulation of negative reactions to minor stresses will likely cause health problems and psychological disorders (Miller et al., 2008; Johnsson et al., 2015). Therefore, it is necessary to explore the dynamic internal interaction, mediation, and moderation mechanisms between daily perceived stress and related perceived negative emotions (i.e., anxiety and depression) in a natural context.

Perceived stress is an individual's cognitive assessment of the threat posed by stressors and their ability to cope with these threats (Liu et al., 2021). In the process of coping with stressful events, individuals are prone to produce a series of negative emotions such as anxiety, depression, anger, and pain (Pereira-Morales et al., 2019; Huang et al., 2021; Clayborne et al., 2022). For example, Israeli et al. (2018) triggered participants' perceived stress through an impromptu speech task and found that induced stress promoted a more severe state of anxiety in participants. In addition, a recent experience-sampling study also supported that perceived stress at a certain moment in daily life could positively predict imminent anxiety (Du and Xu, 2019). Anxiety can also play a role in perceived stress. Anxiety is often closely related to negative cognitive styles such as rumination

(Brosschot et al., 2006), which leads to higher levels of physical and psychological arousal in individuals, causing them to become hyper-focused on future stressors, further exacerbating their subjective experience of stress (Yang and Liu, 2016).

Perceived stress is suggested to predict depression positively. The diathesis-stress theory proposes that specific life stress is essential for triggering depression (Monroe and Simons, 1991). Consistent with this theory, studies have also shown that perceived stress has a stable positive relationship with perceived depression, even in different time windows (Xu et al., 2018; Levine et al., 2019). Individuals in stressful situations may have different evaluation and coping styles to outside stimuli; therefore, they may adopt negative cognitive styles that could worsen depression (Rodríguez-Naranjo and Cano, 2016). However, persistent perceived depression can lead to increased stress. According to the cognitive resource theory (Kahneman, 1973), processing depressed emotions might deplete or divert the resources needed to perform control functions. This diversion of resources leaves individuals with insufficient cognitive resources to cope with environmental events, leading them to perceive more stress (Padmala et al., 2011; Bui et al., 2021).

Moreover, it is well known that depression and anxiety are highly interdependent, meaning that individuals with high levels of depression (anxiety) tend to have severe anxiety (depression) (Chavira et al., 2004; González-Mesa et al., 2020). Despite the high co-occurrence of depression and anxiety, these disorders differ in nature. According to the tripartite model of anxiety and depression, anxiety is simply a high level of negative emotion, whereas depression combines low levels of positive emotion with high levels of negative emotion. Anxiety is associated with high physical arousal, whereas depression is not (Anderson and Hope, 2008). Thus, there is a need to explore the bidirectional relationship between perceived stress and negative emotions (anxiety and depression) and provide an explanation for their co-occurrence (Kuppens and Verduyn, 2017).

Emotions are not self-generated but are caused by changes in the internal or external (usually social) environment (Kuppens and Verduyn, 2017). Because of constant changes in individuals' internal and external environments, temporary emotions fluctuate dynamically. Perceived stress is another dynamic variable that can easily change with time, the environment, and other factors (Henderson et al., 2016; Ekuni et al., 2022).

Magalhaes et al. (2010) have concluded that major depressive disorder often occurs together with anxiety disorder in patients and the causes for both are strongly linked to stressful experiences. Stressful experiences can also make the symptoms of anxiety and depression more severe. By discovering and then blocking a pathway responsible for the link between stress, anxiety, and depression. All the more, this study provided the first biological evidence for a connection between depression, anxiety, and stress. In a layman's perspective stress has a myriad of impacts on individuals, both physically and mentally. Some of these include impairment of healthy coping skills such as spending time with supportive others and engaging in pro-health and wellbeing behaviours (e.g., relaxation and exercise). In addition, stress can increase the risk of engaging in unhelpful coping strategies such as avoidance and spiralling worry and concern about past, current, and future events.

With the realisation of the fact that chronic stress can escalate into anxiety or depression, the factors contributing to DAS need to be examined with a focus on the extreme outcomes of DAS among the student population. Mental Health Foundation, (2015) stated that negative emotional states interfere with individuals' emotional, cognitive, and social abilities, which can lead to underemployment and reduced productivity. The symptoms of these disorders can also lead to a lack of communication with friends and family members; substance abuse; feelings of abandonment; homicidal ideation; and suicidal tendency can occur (Morgan et al., 2017).

Sandal et al. (2017) reinstated that young age groups, poor parental educational states, and poor academic performances were all significantly associated with symptoms of depression, anxiety, and stress among high school students. Apart from the demographic characteristics of individuals, those who have a family history of psychiatric disorder, self-harm, live with relatives or alone, have little social support, and are single were all linked to symptoms of depression, anxiety, and stress in high school students.

Research on Depression, Anxiety, and Stress (DAS) among high school students in India and other different studies revealed that alcohol drinking, occasional cigarette smoking, and other substances are highly associated with symptoms of depression, anxiety, and stress (Zhou et al., 2020). A study done in India identified the unhealthy relationship with peers as a predictor of stress (Chatterjee et al., 2014). Family plays a significant role in the life of the individual. Family support may help the student to cope with stressful life

events. Thus, relationship crises with families and, disharmony between the family members may increase the levels of stress and anxiety (Chatterjee et al., 2014).

Put together, previous studies have mostly been based on observations over relatively long periods in different groups of adults. But the literature pertaining to the relationship between depression, anxiety, and stress among early adolescents is scarce, amidst the statistics of alarming prevalence. Hence the questions - How do adolescents' perceptions of depression, anxiety and stress change dynamically and affect each other? - has not yet been answered well. Subsequently, the current study was formulated with the objective of exploring the bidirectional relationship of the triad of negative emotional states – depression, anxiety and stress.

### **C. PREVALENT PREVENTIVE INTERVENTION MODELS TO ALLEVIATE DEPRESSION, ANXIETY AND STRESS**

According to the latest WHO and Global Burden of Disease study (2017), about one billion people of the total global population (7.5 billion) are affected by any mental disorder including common mental disorders such as depression and anxiety. Overall, 50% of mental disorders start by the age of 24, and 75% start by the age of 14 (Kessler et al., 2005). With young people accounting for 41% of the current global population (0-14 years: 25.4% and 15-24 years: 15.5%), justifiably, mental disorders have been called 'the chronic diseases of the young' (Insel and Fenton, 2005).

After their onset, mental disorders often persist, disrupting the capacity of young people to fulfil their potential (McGorry, 2019; Millan et al., 2016), limiting access to mental (Wang et al., 2007) and physical (Correll et al., 2017) health care, and exposing them to poor education and reduced occupational opportunities (Mojtabai et al., 2015), stigma, social isolation, discrimination, and violation of human rights (Gerlinger et al., 2013). Young individuals suffering from mental disorders have higher morbidity and mortality risks for any reason (including suicide) (Wasserman et al., 2005) than the general population, translating into a striking 10-20 years reduction in life expectancy (Chesney et al., 2014).

The mental health of the younger generation, and indeed of their future, is already fragile and threatened by exceptional worldwide forces such as pandemics, population migrations, economic uncertainties, the sustainability of ecosystems, and climate changes

(Christensen et al., 2017). An urgent individual, societal, and global level response is needed to reduce the incidence and burden of mental disorders in young people (McGorry, 2019). Preventive approaches for mental health issues lag in the line based on education and training in coping skills and emerged only a few decades ago, increasingly gaining traction. At the same time, future advancements require ongoing efforts to identify and overcome their limitations.

Accordingly, this section of the review addresses these issues, with a focus on reducing the incidence of negative mental states. Henceforth, the conceptual foundations of preventive interventions are summarised in the first subsection, the second subsection focuses on the shreds of evidence of mental health promotion intervention programmes as a preventive measure and the subsequent subsection deals with the prevailing preventive approaches. The knowledge reviewed is then used to develop a blueprint for preventive research and practice to improve the mental health of early adolescents.

#### **a. Conceptual Foundations of Interventions**

This section reviews core preventive interventional frameworks that hold relevance for assessing the evidence and limitations of prevention in adolescent populations and information for future research.

##### *Public health framework*

Possible measures of prevention (Robinson, 1859) for mental disorders have been advocated since the late 19th century. In the early 20th century, an individual with the lived experience of a mental disorder initiated the mental hygiene movement (Parry, 2010), which generated new community practices for preventing mental disorders in young people, establishing preliminary public health principles (Emerson, 1925). Caplan, in 1964, classified prevention in mental health as follows: a) primary prevention, which “aims at reducing the incidence of new cases of mental disorder and disability in a population”; b) secondary prevention, which “aims at reducing the duration of cases (and therefore the prevalence) of mental disorders, which will inevitably occur despite the programmes of primary prevention”; c) tertiary prevention, which aims at reducing the community rate of residual defect, which is a sequel to acute mental illness (Caplan and Grunebaum, 1967)

##### *Gordon's framework*

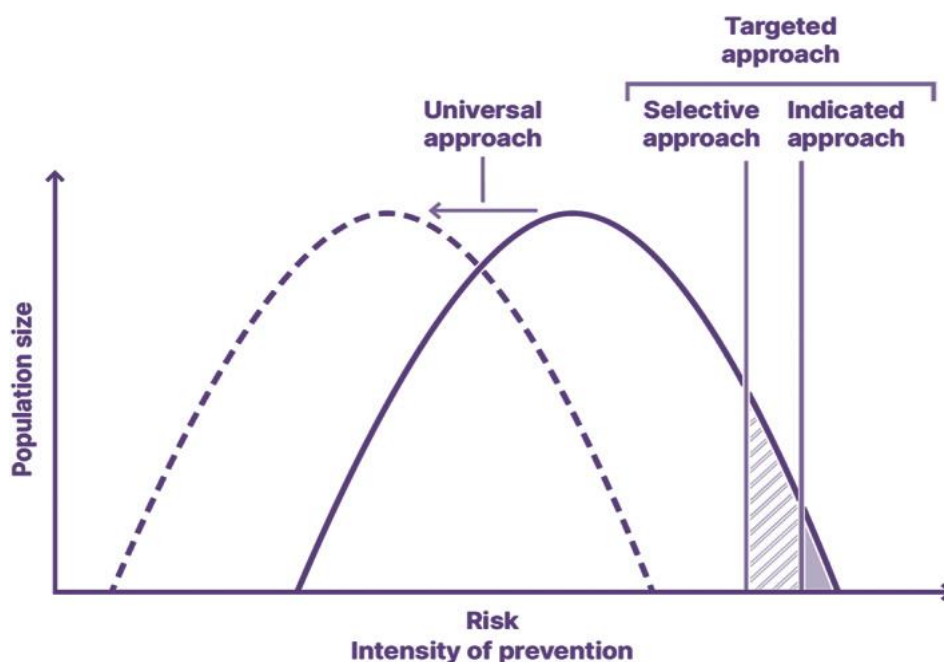
The original formulation of the public health framework was disease-oriented. In 1983, Gordon (1983) addressed these issues in the context of physical illnesses, reserving

the term prevention for those individuals who were not “suffering from any discomfort or disability from the disease or disorder to be prevented”, thus excluding tertiary prevention as well as antecedents such as clinical high-risk syndromes.

Furthermore, Gordon noted that the public health definitions of prevention had little correspondence with interventions offered, and proposed an alternative threefold classification based on the costs and benefits of delivering the intervention: a) universal prevention, a measure that is desirable for everybody, including actions for the general public which, in many cases, can be applied without professional advice or assistance; b) selective prevention, a procedure [which] can be recommended only when the individual is a member of a subgroup of the population whose risk of becoming ill is above average; c) indicated preventive measures, that are advisable only for persons who, on examination, are found to manifest a risk factor, condition, or abnormality that identifies them, individually, as being at sufficiently high risk to require the preventive intervention.

As illustrated in Figure 2 by Fusar- Poli et al. (2021), targeted approaches (i.e., selective and/or indicated) aim to reduce risk among those with the most to gain, and therefore reach a small proportion of the population, universal approaches aim to shift the risk profile of the whole population.

### Gordon's framework of interventions



Source: Fusar- Poli et al. 2021

Figure 2

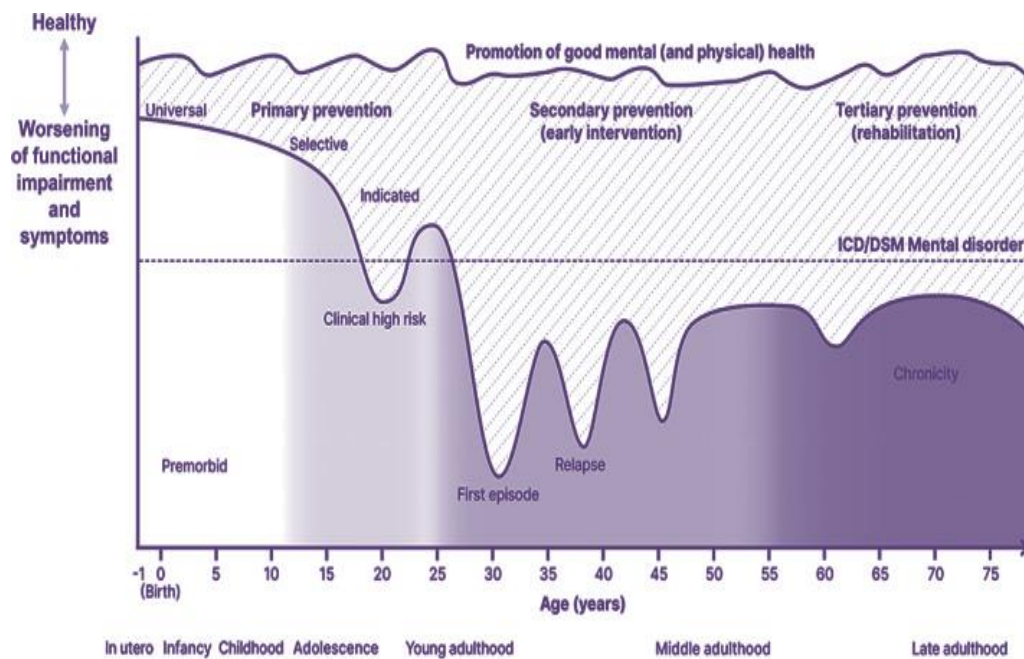
### *WHO framework*

In the current WHO framework, universal, selective, and indicated preventive interventions are all included within primary prevention (WHO, 2004), and indicated approaches are allowed to target antecedents/clinical high-risk syndromes. The WHO classifies the management of mental disorders as a continuum encompassing prevention (complementary universal, selective, and indicated approaches), treatment (secondary prevention and early or standard treatment), and rehabilitation (tertiary prevention and long-term care). The conceptual boundaries between preventive interventions (in individuals) and treatments (in “patients”), particularly in early management (Correll et al., 2018), are porous at times and associated with several empirical, ethical, and societal aspects.

The WHO broadly defines good mental health as a state of well-being in which the individual realizes his or her abilities, can cope with the normal stresses of life, can work productively and fruitfully, and can make a contribution to his or her community (WHO, 2004). Therefore, mental health is much more than the absence of mental disorders. Good mental health and mental disorder, although interrelated, are not on a one-dimensional continuum.

For example, individuals without mental disorders do not necessarily have good mental health. Normally developing young people can display reactive mild anxiety or depression as physiological adaptive strategies aimed at harm avoidance and extinction of maladaptive behaviours (Fusar-Poli et al., 2020). Therefore, mental health promotion can be implemented across all stages as illustrated in Figure 3 Fusar- Poli et al. 2021 (e.g., from healthy people to individuals affected with chronic mental disorders) (US Institute of Medicine, 1994). The promotion of good mental health could also be enhanced by improving physical health, given the close relatedness between these two domains (Jacka et al., 2012)

## Neurodevelopmental continuum model for the prevention of common mental disorders, and promotion of good mental and physical health



Source: Fusar- Poli et al. 2021

Figure 3

### b. Evidence supporting mental health promotion based preventive intervention in young people

The promotion of good mental health in terms of preventive intervention has received less research attention than the prevention of mental disorders, mostly because the operationalisation of outcomes has been fragmented (Fusar-Poli et al., 2020). Mental health promotion is also highly sensitive to different systems, cultures, or clinical practices that differ in values. However, the core domains of good mental health have been empirically proposed (Fusar-Poli et al., 2019), encompassing mental health literacy, attitude toward mental disorders, self-perceptions and values, cognitive skills, academic/occupational performance, emotions, behaviours, self-management strategies, social skills, family and significant relationships, physical health, sexual health, the meaning of life, and quality of life (Fusar-Poli et al., 2020). The consistency and magnitude of available interventions to promote good mental health in young people are similarly patchy and conflicting, comprising psych education (Fusar-Poli et al., 2019), psychotherapy (Collins et al., 2014), and less frequently physical therapy (Sharp and Caperchione, 2016), or art (Rousseau et al., 2009) therapy.

A meta-analysis appraised the efficacy of these interventions aimed at promoting good mental health in asymptomatic young people (Pablo et al., 2020). Compared to controls, available interventions significantly improved mental health literacy (Hedges'  $g=0.685$ ), emotions ( $g=0.541$ ), self-perceptions and values ( $g=0.490$ ), quality of life ( $g=0.457$ ), cognitive skills ( $g=0.428$ ), social skills ( $g=0.371$ ), physical health ( $g=0.285$ ), sexual health ( $g=0.257$ ), academic/occupational performance ( $g=0.211$ ) and attitude towards mental disorders ( $g=0.177$ )<sup>185</sup>. Another recent umbrella review showed that positive psychology could increase subjective well-being (Pablo et al., 2021).

Hence, an overall analysis of the literature collated had given an understanding that the preventive interventions within the universal, selected and indicated continuum focussing the promotion of mental health framework gain significance for the population who are vulnerable but not as such exposed or exposed to an extent. Hence the current research planned to adopt a preventive intervention model to promote the mental health of early adolescents. Now the question of what type of preventive intervention would suit the study population arises. Accordingly, the following subsection analyses the principles, pros and cons of available interventions.

### **c. Prevalent preventive interventions toward the promotion of mental health**

Some of the most commonly used programmes in alleviating depression, anxiety and stress among adolescents were collated to further the current research and presented below:

***Physical activity:*** It is also associated with a range of health benefits, and its absence can have harmful effects on health and well-being. Moreover, exercise is an integral part of the treatment and rehabilitation of many medical conditions. Improving physical well-being may also lead to improved psychological well-being and it is generally accepted that physical activity may positively affect mood and anxiety (Strohle, 2009).

Cross-sectional studies have consistently associated high self-reported levels of habitual physical activity with better mental health and a correlation of habitual exercise level with low depression (but not anxiety) has been described in adolescents (Morris et al., 1990). The association of regular physical activity and lower prevalence of current major depression, social phobia, specific phobia, and agoraphobia was significant and persisted after controlling for socio-demographic characteristics, self-reported physical

disorders and comorbid mental disorders. Motl et al. (2004) reported that naturally occurring changes in physical activity are inversely related to depressive symptoms during early adolescence.

A sample of 2,548 adolescents and young adults, described those subjects with regular physical activity had a substantially lower overall incidence of any and comorbid mental disorders after four years (Strohle et al., 2007). A great number of studies suggest that exercise training may reduce depressive symptoms in nonclinical and clinical populations (Singh et al., 2005). However, physical activity evidently proves to be efficacious to reduce depression and stress, it does not provide a repertoire of coping skills to alleviate all negative emotional states.

**Yoga Therapy:** It is an integrated model of mind-body practice that includes physical postures, movement, breath control and techniques, relaxation, mindfulness, and meditation (Saeed et al., 2019), which is effective in improving exercise adherence and compliance and is readily accepted by most people (Thornton et al., 2016). Pranayama is the practice of breath regulation. It's a main component of yoga, an exercise for physical and mental wellness. In Sanskrit, - “prana” means life energy and “Yama” means control. In yoga, pranayama is used with other practices like physical postures (asana) and meditation (dhyana). In a study, pranayama reduced perceived stress levels in healthy young adults. The researchers speculated that pranayama calms the nervous system, which improves your stress response (Sharma, 2013). Amidst its benefits, Yoga cannot be given as a separate entity for mental health promotion.

**Music Therapy:** It is a strong elicitor of emotion but also facilitates the regulation of emotion. Music activates the cortical network associated with emotion, including the frontal system, which is involved in emotion processing. Music is known to engage brain areas such as the mesolimbic area and the nucleus accumbens, the reward centre of the brain, which is known to be involved in real-life emotional experiences. Music alters psychophysiological parameters such as pain perception, relaxation, blood pressure, respiration and heart rate (Hegde, 2017). Systematic, randomised controlled studies of music therapy in psychiatric conditions have recently been carried out - Cochrane reviews of its use in patients with depression (Maratos et al., 2008). Listening to music has also been shown to have beneficial effects in improving mood and certain cognitive functions in clinical conditions such as depression (Hegde, 2017). Needless to say, like physical

activity and yoga, music therapy also cannot be given as a separate entity to promote mental health.

***Self-System Therapy (SST)***: SST is a brief, structured psychotherapy that is based on Higgins's (1997) regulatory focus theory. SST was designed for depressed individuals with problematic self-regulation as a primary factor in the onset and maintenance of depression. SST incorporates techniques from a number of empirically supported psychotherapies, including cognitive, interpersonal, and behavioural activation therapies. The focus of SST is on translating the principles of regulatory focus theory into an intervention that examines and modifies the individual's goals and the strategies for pursuing them. This treatment focuses on self-evaluation and increasing promotion-focused behaviour through psycho-education, helping patients learn to conduct their own situations and belief analysis, altering or compensating for one's regulatory style, and moving toward a view of self in a broader context.

As reviews illustrate (Strauman and Kolden, 1997) there is extensive literature documenting the association between self-regulatory cognition and vulnerability to distress. The concepts that make up the foundation of SST emerged from two decades of research on the motivational and cognitive bases of self-regulation, and the structure and strategies of SST were developed to address depressive symptoms in individuals manifesting specific problems in self-regulation (Vieth et al., 2006). In general, SST is used only among individuals who have a problem with self-regulation and not otherwise.

***Brief Psychosocial Intervention (BPI)***: Kelvin et al. (2010) manualised treatment designed for use with depressed adolescents in Child and Adolescent Mental Health Services in the United Kingdom. The intervention is a treatment based on re-structuring and codification of the principles and practises found in the domains of skilled assessment, listening, information giving, advising, problem-solving, safety, caring and explaining adolescent depression. Structured care is delivered through the carefully considered individualised formulation of the young person's presentation and life circumstances. BPI aimed to gain an understanding of mental states, build trust in others to form and/or rebuild relationships with family and friends and manage risks and problems. The stance of BPI should be collaborative, actively seeking to enhance strengths and resilience to overcome challenges the young person faces with those close to them, be that at home, school and/or

wider social groups, including online. The key shortcoming of BPI is that the therapy is not researched much and evidently proven.

***Short-Term Psychodynamic Psychotherapy (STPP):*** It refers to a family of treatments that share the common feature of being rooted in psychoanalytical theories, such as drive psychology, ego psychology, object relations psychology and attachment theory. Psychodynamic approaches to the treatment of depression focus on the internal world, emphasizing “how (unconscious) motivational factors lead the patient to (mis) perceive and (mis) interpret external reality and experiences and to create, unwillingly, problems that maintain depressive symptoms, particularly in interpersonal relationships” (Luyten and Blatt, 2012). Psychodynamic approaches to the treatment of depression are more person than disorder-centred. In changing attitudes and feelings in the present, they emphasize the importance of a developmental perspective as well as the role of insight into the past (Luyten and Blatt, 2012). The major limitations of STPP are very short therapy, not suitable for everyone and causes distress in many.

***Mindfulness-Based Interventions (MBIs):*** It has grown exponentially in recent years (Creswell, 2017). Buddhist traditions first explored the concept of mindfulness in broad philosophical terms unfamiliar to most modern readers. Nevertheless, mindfulness has spread rapidly in Western psychology research and practice, in large part because of the success of standardized mindfulness-based interventions (Gu et al., 2015). MBIs are of two types, namely Mindfulness-Based Stress Reduction (Kabat-Zinn, 1982) and Mindfulness-Based Cognitive Therapy (Segal et al., 2002).

✓ ***Mindfulness-Based Stress Reduction (MBSR)*** is a programme that uses mindfulness meditation to reduce stress and anxiety and manage emotions. Through the MBSR activities, individuals become attentive to bodily sensations while practising non-judgmental awareness of their thoughts. By incorporating MBSR principles into their daily lives, individuals can manage physical and mental symptoms of illness and difficult emotional situations. This process can reduce anxiety and stress and improve mental health (Sharma and Rush, 2014). Five studies of MBSR were eligible for review. Of these studies, one rated high and four rated moderate, giving the intervention an overall rating of “strong support for causal evidence.” Studies included in this evidence review focused on the general college student population, as well as

students with depressive symptoms (McIndoo et al., 2016) or those seeking stress reduction (Hazlett- Stevens and Oren 2017) and

- ✓ *Mindfulness-based Cognitive Therapy (MBCT)* involves sessions with a therapist, but teachers can use aspects of mindfulness in the classroom. Semple et al. (2010) conducted a quantitative, experimental study involving 25 children between the ages of 9 and 13. Mindfulness-based cognitive therapy for children (MBCT-C) requires 12 sessions of group therapy over 12 weeks. Students were required to attend at least eight of the sessions to complete the study. Twenty students completed the study. Parents were required to complete the Child Behaviour Checklist to give researchers information on the participant's behaviours and any problems they might have. Students were required to complete the Multidimensional Anxiety Scale for Children and the State-Trait Anxiety Inventory for Children. Students rated themselves for both surveys.

The excitement about the application of mindfulness meditation in mental health settings raises two major concerns. First, considering the range of individual differences within the experience of meditation; some people may benefit from its practice, others will not be affected in any substantive way, and a number of individuals may suffer moderate to serious adverse effects. Second, is the insufficient or inconclusive evidence for its benefits, particularly when mindfulness-based interventions are compared with other activities or treatments (Farias and Wikholm, 2016).

***Cognitive Behavioural Therapy (CBT)***: This is a short-term, goal-oriented psychotherapy treatment enabling individuals to understand their current problems, challenges, and experiences and change patterns of thinking or behaviours. It is commonly used to address depressive and distortive thoughts associated with depression, generalized anxiety disorders, suicidal ideation, and eating disorders. CBT helps to develop accurate assessments of circumstances and feelings so they can develop realistic strategies to address them.

With the CBT approach, they are trained to evaluate inaccurate thoughts, actions, and negative feelings that may contribute to their depression, anxiety, suicidal ideation, and/or other mental distress (Chen et al., 2019). CBT treatment usually draws on a variety of strategies to try to change peoples' thinking and behavioural patterns. These strategies might include building awareness of one's thoughts, identifying negative or inaccurate

thoughts, developing a greater sense of confidence, facing one's fears, positive self-talk, and stress management techniques, among others Hunt et al. (2015).

Cognitive Behavioural Therapy (CBT) is available in a variety of forms, including individual therapy, group therapy, and computerized or internet-guided delivery. Driessen and Hollon (2010), found CBT to be superior and as efficacious as other psychotherapies. When adequately implemented, CBT can be as efficacious as anti-depression medication for patients with more severe depression. CBT reduces relapse and/or recurrence rates, with a magnitude of effect that might be comparable to keeping patients on medications.

The one main disadvantage amidst the efficacious nature of CBT is that the therapy focuses on the individual's capacity to change themselves (their thoughts, feelings and behaviours), and does not address wider problems in systems or families that often have a significant impact on an individual's health and wellbeing.

***Acceptance and Commitment Therapy (ACT):*** ACT aims to increase psychological flexibility. Psychological flexibility is the ability to comprehend current thoughts and emotions and continue or change one's behaviour, depending on the situation and one's values. ACT was developed in the 1980s by psychologist Steven C. Hayes, a professor at the University of Nevada. The ideas that coalesced into ACT emerged from Hayes's own experience, particularly his history of panic attacks. Eventually, he vowed that he would no longer run from himself, he would accept himself and his experiences.

This therapy can be used with a wide variety of populations and age groups to reduce negative behaviours and improve mental health. Studies included in this evidence review focused on the general student population, as well as students seeking services from their college counselling centres (Levin et al., 2015). Studies that contributed to the strong rating of this intervention demonstrated that ACT with students had the following outcomes: a. Decrease in distress (Levin et al., 2020) and b. Decrease in social anxiety (Levin et al., 2017).

While ACT is evidence-based and effective, it isn't appropriate for everyone for the following reasons a) ACT is present-focused, which is not suitable for addressing past traumas b) For people with deeply rooted trauma, ACT may not be comprehensive enough to meet their needs. In these cases, therapies that focus more on the root of maladaptive

thinking and behaviour patterns may be more suitable c) ACT exercises are structured and may not work for everyone. Above all, ACT is an action-oriented approach to psychotherapy that stems from Cognitive Behavioural Therapy. So, using the base philosophy directly would benefit far better.

***Dialectical Behaviour Therapy (DBT):*** It is a psychotherapy treatment originally developed by Dr. Marsha Linehan to treat individuals at risk for suicide (Substance Abuse and Mental Health Services Administration, 2020) and/or those with borderline personality disorder (BPD). DBT is commonly used to address depressive symptoms, SUDs, post-traumatic stress disorders, and a wide range of other disorders. It focuses on dialectical or opposing strategies of acceptance and change (Centre for Behavioural Health Statistics and Quality, 2021). It also has proven efficacy in treating depression in adolescents. In the studies included in this review, DBT was used for students with test anxiety, with attention-deficit/hyperactivity disorder (ADHD), who reported serious problems with emotion regulation, with symptoms of mood disorders, and those seeking other treatment recommended by college counselling centres (Wilcox et al., 2004).

Dialectical Behaviour Therapy (DBT) is a more specific form of CBT that focuses on helping people who tend to have extreme emotional reactions interact with the environment around them in a less emotional, healthier way. DBT often is the most effective therapy for people with borderline personality disorder and those who struggle with self-harm or chronic thoughts of suicide.

***Stress Inoculation Training (SIT):*** It's a type of CBT developed in the early 1970s as a treatment programme for phobias (Meichenbaum and Cameron, 1972). The philosophy behind SIT is that it helps individuals prepare for stressful situations before they happen. It also helps understand the stressors and develop stress management skills, so it doesn't further impact physical and mental health. The use of the term "inoculation" in SIT is based on the idea that a therapist is inoculating or preparing an individual to become resistant to the effects of stressors in a manner similar to how a vaccination works to make people resistant to the effects of particular diseases.

In SIT, patients are educated about stressful situations and the general nature of stress, the negative outcomes they may be vulnerable to experiencing when confronted with stress, and the steps they can take to avoid those negative outcomes. At the conclusion of stress inoculation efforts, the individuals should feel like they can anticipate pitfalls that

may occur during an event, and have a workable and practical plan in place for helping themselves avoid those pitfalls. One major advantage of SIT is that it is a flexible, individually tailored, multifaceted form of CBT.

Sheehy and Horan (2004), in a study involving students, found positive effects of SIT on anxiety, stress, irrationality, and a statistically significant academic performance improvement. Stress inoculation training (SIT) is another potentially effective method for stress management as a type of cognitive behavioural therapy, SIT includes a wide range of techniques such as cognitive reconstruction, problem-solving, and environmental modifications. SIT is presumed to increase the formation of “psychological antibodies” (i.e. coping strategies) in individuals and thereby, improve their flexibility to stressful situations (Meichenbaum et al., 2007).

Another study also reported that cognitive behavioural SIT significantly promoted problem-focused coping (Simi et al., 2015). Stress management programmes, such as Meichenbaum's (1985, 1993) model of Stress Inoculation Training (SIT), based on cognitive and behavioural techniques have produced a decrease in anxiety and stress in adolescents participating in the programmes (Yahav and Cohen, 2008).

Applying the principles of SIT, Maraichelvi (2016) formulated an intervention termed School Stress Inoculation Training (SSIT) specially designed for school children to equip school students with stress-coping skills to improve their academic performance by reducing their stress levels. SSIT had three stages namely i) Conceptualization or education phase ii) Skill acquisition and rehearsal iii) Application and follow-up. It was tested among 238 school-going children and found that it had helped to bolster the students' preparedness and developed a sense of mastery over the usage of coping repertoires, which undoubtedly authenticates the efficacy of the three tiers of SSIT intervention provided to them.

On an overall note, stress management through behavioural and cognitive practice intends to increase the sense of control, self-efficacy, self-esteem, efficient coping and social support in the person with stress. These changes reduce negative mood states and social isolation and improve quality of life (Antoni et al., 2007). Tuttle (2006) indicated that training life skills in adolescents results in improving their decision-making abilities, and communication and increasing their self-confidence. Stress inoculation training has

been designed in line with the growth of coping skills, affecting not just resolving the person's current problems but also future problems.

#### **d. Future directions of research and practice - Improving prevention through education and training**

The mental health and well-being of students provide the foundational base for imparting holistic development and nurturing students' qualities/life skills that assist them in their growth, self-preservation, and sustainable development. It is important to understand that mental well-being is interlinked with all aspects of health — physical, social, and emotional and any compromise in one aspect necessarily has an impact on all others (Sibia et al., 2022). So, integrating the conceptual frameworks with the evidence reviewed and suggesting an intervention to prevent and promote the mental health of adolescents is necessitated. With this as an objective, the current study aims to identify and customize a suitable preventive intervention to alleviate DAS among school-going adolescents.

Gordon, 1983 a way back had also emphasised innovative curricula which could be developed to train new “transitional” healthcare workers, which could also incorporate core conceptual and methodological issues about the science of prognosis and preventive interventions (for example, universal/public health approaches may require economic or social understanding that extends beyond medical knowledge (Schultze-Lutter et al., 2018). At present the investigator also aims to formulate a model which could be incorporated into the school curriculum to help the students to elicit negative emotions.

Furthermore, knowledge and resources in the prevention of mental disorders and mental health promotion are unevenly distributed around the world, and global training initiatives are needed to support countries that are still lacking capacity and expertise. This goal could be achieved through international networks of collaborating research centres (Saxena et al., 2006). Finally, policymakers should be educated on the achievements and limitations surrounding the prevention of mental disorders among adolescents, and funders supported the design of preventive calls.

The investigator concludes by citing a study of Singh and Bhatnagar (2016), where they mention that everyone experiences anxiety, depression and stress at one time or

another. Be it educated, professional, students or those living in marginalized existence, for almost all, it is an overwhelming experience predisposing them at times too emotional and psychiatric breakdowns and physical ailments and at other point of times negative life events.

However, it is important to note that some interventions have only limited evidence of effectiveness in reducing symptoms among adolescents. Thus, promoting selective preventive strategies supporting children's physiologic reactivity, cognitive control, and self-regulation within a classroom setting, may represent a massive preventive action and ensure the earliest possible access to intervention to limit the continuity of mental health problems from adolescence to adulthood.

Based on the advantages and disadvantages of the coping strategies and therapies which were found used among the school children. The present study aimed to customize a preventive intervention framework suitable for early adolescents. Accordingly, most of the efficient prevalent interventions have their base in CBT. However, CBT has a limitation in addressing wider problems in systems or families that often have a significant impact on an individual's health and well-being. What can be done to compensate for the limitation becomes the next concern.

Analysing the philosophy of SIT, which is also based on the philosophy of behavioural and cognitive practice (like CBT), has got the additional advantage of exposing the trainees to a milder dose of triggers causing negative emotional states. Therefore, the trainees can be exposed to the wider problems of the system or family and will be trained to use appropriate practice or coping skills from the repertoire learnt and practised. Hence the limitation of CBT can be compensated to an extent. Moreover, the preventive intervention to be customised is also expected to further research and new policies to strengthen the child's negative emotions like DAS and increase his/her well-being. Hence, the current study was framed to formulate a suitable preventive intervention to alleviate Depression, Anxiety and Stress (DAS) in school-going adolescents by combining two therapies namely CBT and SIT which is discussed in detail in the next section.

## **D. THEORETICAL FRAMEWORK OF COGNITIVE BEHAVIOURAL THERAPY (CBT) AND STRESS INOCULATION TRAINING (SIT)**

After reviewing the collated pieces of literature in detail concerning the burden of mental health issues among young adolescents, the researcher perceives that maintaining the good psychological health of adolescents from early years should be a prime concern. Accordingly, the benefits and drawbacks of the prevailing preventive interventions were analysed and the investigator felt that the Stress Inoculation Training (SIT) framework gives a broader advantage of having an inoculation component and the possibility of customising the intervention strategies relevant to the population of interest and Cognitive Behaviour Therapy's (CBT) major lacuna of not addressing wider problems in society could be merged as most of the philosophical base, assumptions and framework match with each other.

In order to formulate a blueprint of the proposed therapy (CBT and SIT merged), the theoretical framework of each of these therapies is thoroughly analysed to find a way to merge and customise both of these techniques for the current population of interest, the early adolescents. Subsequently, the theoretical framework of CBT and SIT with a review of meta-analysis on both and the conceptual framework of the proposed intervention are discussed in this section of the review.

### **a. Theoretical Framework of Cognitive Behavioural Therapy (CBT)**

The cognitive revolution was pioneered by the works of Aaron T. Beck, a Psychiatrist at the University of Pennsylvania, and Albert Ellis, a Psychologist in the 1960s. Aaron T. Beck, within the course of his psychoanalytical treatment, observed the fact that traditional psychoanalytical concepts for depression "aggression directed inwards" could not be validated and certain patterns were evident in the thoughts of depressed individuals. He observed that their symptoms were the result of negative bias in their cognitive processing. This led to the development of cognitive therapy. Concurrently, "Rational Emotive Behaviour Therapy" was developed by Albert Ellis, stating the same notion that faulty cognition leads to emotional disturbances (Bhattacharya et al., 2016). Accordingly, it is found that CBT helps to identify, question and change the thoughts, attitudes, beliefs and assumptions related to the problematic emotional and behavioural reactions to certain kinds of situations. By monitoring and recording the thoughts during situations that lead to emotional upset, a person learns that the way he/she thinks can contribute to emotional problems such as depression and anxiety.

Cognitive Behavioural Therapy (CBT) is based on the idea that the way an individual thinks (cognition), he/she feels (emotion) and acts (behaviour) all interact together. In brief, the thought determines the feelings and the behaviour (Mcleod, 2023). CBT is a type of psychotherapeutic treatment that helps people learn how to identify and change the destructive or disturbing thought patterns that negatively influence their behaviour and emotions (Hofmann, 2012 as cited by Cherry, 2022). CBT combines cognitive therapy with behaviour therapy by identifying maladaptive patterns of thinking, emotional responses, or behaviours and replacing them with more desirable patterns. Through CBT, faulty thoughts are identified, challenged, and replaced with more objective, realistic thoughts (Cherry, 2022).

Cognitive Behavioural Therapy (CBT) is a form of psychological treatment that has been demonstrated to be effective for a range of problems including depression, anxiety disorders, alcohol and drug use problems, marital problems, eating disorders, and severe mental illness. Numerous research studies suggest that CBT leads to significant improvement in functioning and quality of life. In many studies, CBT has been demonstrated to be as effective as, or more effective than, other forms of psychological therapy or psychiatric medications (APA, 2017). CBT facilitates learning to reduce emotional problems by: Identifying distortions in the thinking; Seeing thoughts as ideas about what is going on rather than as facts; and standing back from thinking to consider situations from different viewpoints (Rector, 2010).

**Technique involved in CBT:** CBT includes a variety of techniques and approaches. These are exposure therapy, stress inoculation training, cognitive processing therapy, cognitive therapy, relaxation training, dialectical behaviour therapy, and acceptance and commitment therapy (Foa, 2009). Therapeutic techniques vary according to specific issues that have to be dealt with and target the core components of a given disorder. CBT is typically delivered over the course of 12 to 20 sessions; each session lasts from 45 min to one-hour duration (Bhattacharya et al., 2016). The techniques used are cognitive and behavioural domains and the steps involved are listed below:

#### *Cognitive techniques*

- Identifying and monitoring negative thoughts
- Rating the degree, the belief in such negative thoughts and the degree of emotion associated with those thoughts

- Categorizing the negative thoughts in specific cognitive distortions
- Vertical descent (What would it mean if the thought were true?)
- What is the underlying assumption?
- What are the costs and benefits of the thought?
- Listing the evidence supporting and refuting these thoughts
- Placing the event in perspective by examining its consequences in the patient's view
- Double standard (asking the patient if he would apply the same standards if the event occurs with others)
- Role switching and arguing back at negative thoughts by the patient
- The patient is asked to examine many alternative causes and consequences of the thought, especially fewer negative alternatives and
- Acceptance (Is there a reality that the patient can learn to accept, rather than trying to fix or struggle with it?)

#### *Behavioural techniques*

- Exposure or confronting the feared stimuli
- Graded exposure
- Modelling (e.g., therapist demonstrates in session an appropriate assertive response that the patient then imitates)
- Imitation (e.g., patient "copies" and enacts the behaviour that he observes in another person)
- Behavioural rehearsal (patient enacts the behaviour that he plans to conduct outside of therapy)
- Relaxation techniques
- Activity scheduling (listing activities throughout the day and rating them for various emotions associated with them)
- Graded task assignments (planning and enacting behaviours that are expected to produce reward)
- Assertiveness training
- Communication training and
- Self-reward to increase desirable behaviours (Bhattacharya et al., 2016).

**Group cognitive behavioural therapy:** CBT can also be given in group therapy settings, in which the therapeutic benefits of both CBT and group therapy can be combined. This technique is found to be useful in patients with substance use disorders (Fisher and Bentley, 1996), depression (Clarke et al., 1999), anxiety disorders (Dugas et al., 2003) social phobia (Heimberg et al., 1998), and also in children (Silverman et al., 1999). The group CBT is cost-effective, as well as it allows patients to learn about their cognitive distortions by observing other patients and it also provides a safe environment for them to learn and practice communication and social learning skills as in real-life situations.

**Application of CBT to Various Disorders:** After the development of CBT, in the initial few years it primarily gained recognition as a treatment method for mood disorders and anxiety disorders (Brewin, 1996). As CBT started gaining popularity, the indications for its use were found in various psychiatric as well as medical disorders by various workers. Today, some claim that CBT is probably the first line of psychological treatment for many disorders (Rachman, 2009). Few are:

*Substance use disorders:* Numerous large-scale trials and quantitative reviews have shown the efficacy of various CBT interventions in the treatment of alcohol and other drug use disorders (Magill and Ray, 2009).

*Personality disorders (PD):* CBT offers various specific therapeutic techniques that depend on the core psychopathological symptoms of PD. Although there is supporting evidence for the efficacy of CBT interventions in PDs, the most studied and widely adopted technique is dialectical behaviour therapy which is used in patients of borderline personality disorder (Lynch et al., 2007).

*Depression:* Initially, CBT was considered a treatment of choice for mild to moderate depression among psychological treatment options. The efficacy of CBT in depression has been shown by empirical evidence in which it has been stated to be superior or at least equally effective with other treatments including antidepressants (Cuijpers et al., 2012).

*Anxiety disorders:* Numerous studies have shown that CBT is effective in reducing information processing biases and avoidance behaviours which are characteristic of anxiety disorders and also that with CBT, stronger effects are observed for the treatment of anxiety disorders as compared to other disorders (Butler et al., 2006).

*Psychotic conditions:* The current evidence from multiple randomized controlled trials and meta-analyses suggests that CBT is a potent adjunct to pharmacotherapy in psychotic conditions (Tarrier and Wykes, 2004). CBT is effective in dealing with persistent positive as well as negative symptoms of schizophrenia and also it improves medication adherence. CBT has also shown its effectiveness in the treatment of acute psychoses (Drury et al., 1996).

*Obsessive-compulsive disorder:* CBT is considered an effective psychological treatment for OCD (Hofmann and Smits, 2008) particularly in obsessional problems where intrusive thoughts are considered a personal responsibility. CBT can change responsibility beliefs and appraisals and thereby reduce distress and neutralise behaviours (Salkovskis et al., 1998). However, in compulsive behaviours, the behavioural component of exposure seems to be the active component of therapy (Deacon and Abramowitz, 2004), but the cognitive component can make the patient more compliant with behavioural measures.

**Benefits of Cognitive Behavioural Therapy:** The underlying concept behind CBT is that thoughts and feelings play a fundamental role in behaviour. The goal of CBT is to teach people that while they cannot control every aspect of the world around them, they can take control of how they interpret and deal with things in their environment. CBT is known for providing the following key benefits:

- It helps to develop healthier thought patterns by becoming aware of the negative and often unrealistic thoughts that dampen your feelings and moods (Hofmann et al., 2012)
- It is an effective short-term treatment option as improvements can often be seen in five to 20 sessions
- It is effective for a wide variety of maladaptive behaviours (Hofmann et al., 2012).
- It is often more affordable than some other types of therapy
- It is effective whether therapy occurs online or face-to-face; individual or group (Kumar et al., 2017)
- It can be used for those who don't require psychotropic medication and
- It helps clients develop coping skills that can be useful both now and, in the future, (Hofmann et al., 2012).

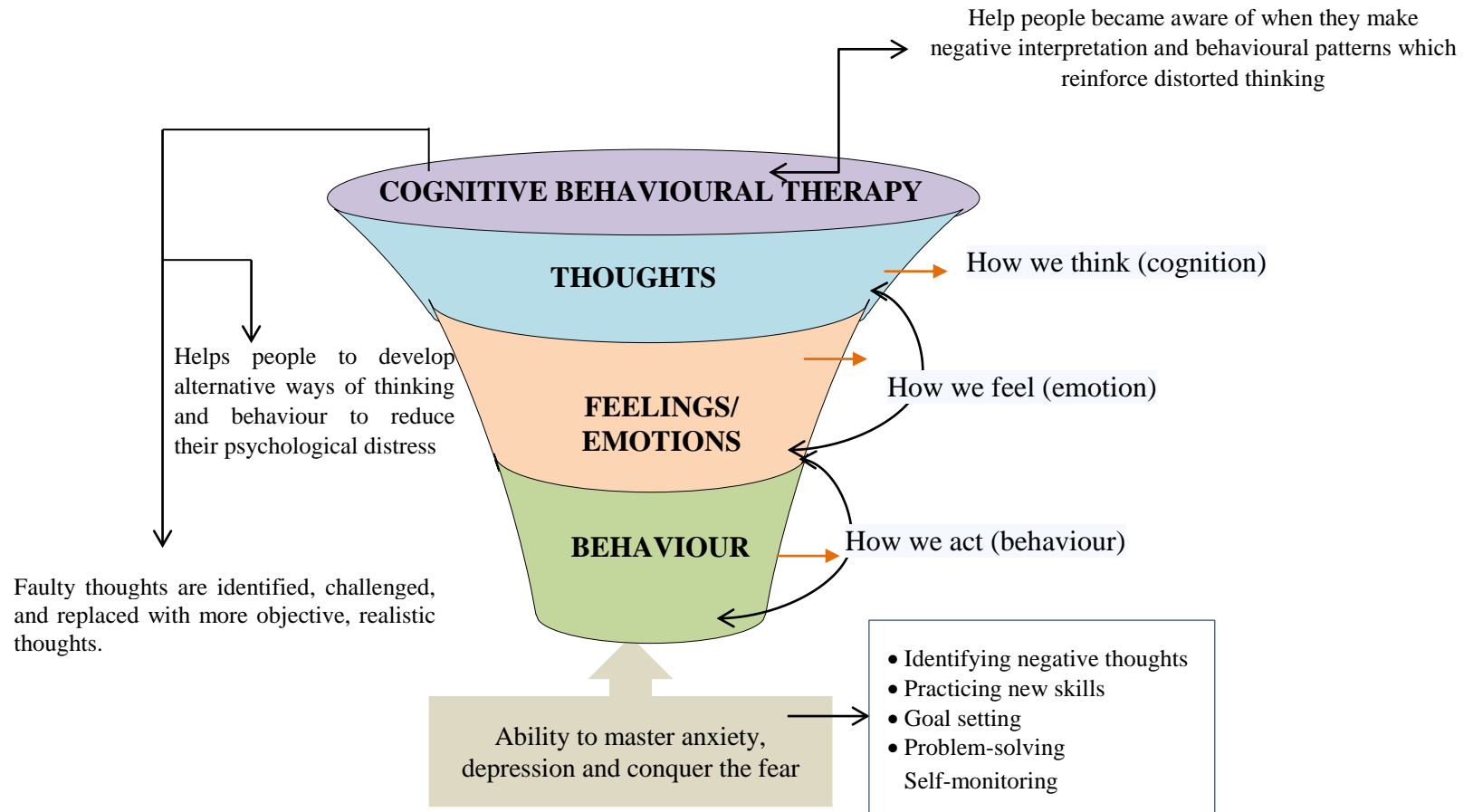
**Meta-analysis of CBT:** The following were the observations made by the meta-analysis on various moderators of the CBT approach which were discussed below:

- ✓ CBT has been one of the most appropriate treatment methods for people with anxiety and depression, according to Serfaty et al. (2009), was an effective treatment recommended for depressive disorder in adults of all ages and was associated with continuous improvement over time; it was one of the most systematically researched psychosocial treatments for depression in adulthood
- ✓ CBT remains one of the mainstays of psychotherapeutic intervention for different mental health conditions. It is one of the most evidence-based psychotherapeutic interventions (Hofmann et al., 2010)
- ✓ Apart from hospitals and clinics, it is also used in schools, vocational programmes, and rehabilitation centres among other settings. It has been found beneficial in generalized anxiety, stress, (Hofmann et al., 2012), obsessive-compulsive disorder (Foa, 2010), phobias (Davis et al., 2007), depression (Arnberg and Ost, 2014) and behavioural problems (Sukhodolsky et al., 2016)
- ✓ CBT and its variants have been found effective in several childhood and adolescent mental health conditions. Reviews of efficacy studies suggest that adolescents who receive CBT show benefit (Seligman and Ollendick, 2011)
- ✓ In 1979, Time magazine reported that there were almost 200 different types of psychotherapy. As of 2010, there are thought to be between 400 and 500 types. However, when directly compared, only a handful of therapy approaches have been shown to be highly effective for the kinds of problems people usually seek help for, such as depression, anxiety, phobias and stress-related problems. Of the many therapies available, CBT is increasingly identified as the “gold standard”—that is, the best type of therapy for these difficulties. CBT has been shown to be effective for people of all ages, from early childhood to older adults, and for people of different levels of education and income and various cultural backgrounds. It has also been shown to be effective when used in individual or group formats and
- ✓ CBT is a brief psychotherapy, carried out individually or in groups, based on the relationship between thoughts, feelings and behaviours (Cheung et al., 2013). CBT focuses on cognitive distortions associated with depressive mood and the development of behavioural activation techniques, coping strategies and problem-solving Clark et al. (2012). When used in acute depression, it has been shown to

have a moderate effect (Cheung et al., 2013). CBT seems to be useful in preventing relapses and suicidal ideation, in the treatment of resistant depression and in adolescents with long-term physical conditions (Thabrew et al., 2018).

**Framework of CBT:** The implementation of CBT in practice involves three stages: assessment; intervention and evaluation (Teater, 2010). Assessment consists of exploring jointly with service users how their thoughts, feelings and behaviours are contributing to the presenting problem in terms of frequency, intensity and duration. The assessment stage will inform the type of intervention to be selected, based on the thoughts, feelings or behaviours that are the focus of change. Such interventions include cognitive restructuring (Frojan-Parga et al., 2009); relaxation techniques (Payne and Donaghy, 2010); social skills training (Sheldon and Kasser 1998); assertion training and problem-solving skills (O'Donohue et al., 2003); and reinforcement, modelling and role-plays (Sutton and Barto, 1998). The theoretical framework of CBT is illustrated in Figure 4.

## Theoretical framework of Cognitive Behavioural Therapy (CBT)



**Figure 4**

## **b. Theoretical framework of Stress Inoculation Training (SIT)**

Stress Inoculation Training (SIT) presented by Donald Meichenbaum, in the early 1970s, developed stress inoculation as a training programme to help deal with stress and reduce anxiety which combines a number of the best elements of behavioural and cognitive therapy. The basic principle of SIT is to pay attention to thinking, feeling, behaving and affecting the others as a prerequisite for changing behaviour (Corey, 2012). In other words, SIT strongly and directly emphasizes on person's thoughts, feelings, perceptions and analysis of daily life (Lancaster et al., 2016). SIT is much like we take a vaccine to inoculate ourselves against viruses; Meichenbaum believed we could inoculate people against stressful circumstances.

Stress Inoculation Training (SIT) as presented by Meichenbaum emphasizes learning coping skills, especially the skill of negative self-talk detection in stressful situations, and helps the clients overcome stressful situations. SIT is like measles vaccination, which through slight stimulation of the biological system, makes the body immune to the more important and bigger stressors. In this way, individuals are given a chance to cope with stress and experience relative success. The principle of SIT is to force individuals to change their beliefs about stressful behaviours and self-talk about stress-coping methods. Meichenbaum has developed a three-stage model for SIT:

- First, the **conceptualization stage** is to establish a cooperative relationship between therapist and patient. Moreover, training is about clarifying the perception of stress, the relationship between stress and coping, and the role of thoughts, actions and emotions that create and maintain stress.
- In the second stage, the **skill acquisition and rehearsal stage** will emerge. At this stage, the therapist develops cognitive and behavioural skills. These methods include new information, planning for escape routes, changing negative selfishness to positive selfishness, behavioural effort for relaxation, decisiveness and self-esteem in order to cope with stressful situations (Corey, 2012).
- Finally, the **application and follow-through stage** is to plan and solve the problems and reduce stress in order to practice the learnt skills in real life (Seligman and Reichenberg, 2009).

**Techniques involved:** A variety of coping skills that are useful were as follows.

- *Deep breathing:* There are two parts to this coping training - learning how to breathe deeply and then practicing it between therapy sessions so it becomes a healthy habit (Hourani et al., 2018).
- *Learning to silently talk to oneself:* In SIT an individual learns to focus on internal talks by quickly recognizing negative, down-putting thoughts about oneself, stopping them, and changing them to positive, encouraging statements (Tasman and Kay, 2015).
- *Muscle relaxation training:* Learning how to relax each of the major muscle groups by tensing and releasing them in the correct way is the focus (Lancaster et al., 2016).
- *Role-playing:* Here's when the trainee starts to practice the coping techniques that are learned.
- *Thinking about and changing negative behaviours:* This is where the individual learns to use imagination to practice effective coping. The therapist guides the individual through an entire situation in which he/she successfully recognises trauma-related cues and takes action to prevent them from getting out of control (Lancaster et al., 2016)

**Benefits of SIT: Some of the benefits of SIT are discussed below:**

- ✓ Situational awareness. Every individual has an idea of what he/she thinks of stressful situations will be like and how will we react and perform in them through SIT.
- ✓ Increased functioning and focus. Research showed that individuals who participate in SIT can better perform in stressful situations (5.11 Tactical, 2022)
- ✓ Identify skills to improve calm states. A meta-analysis that included over 1,400 participants concluded that SIT can effectively reduce symptoms of anxiety and stress.
- ✓ Increased confidence. People who participated in SIT often feel more comfortable in situations that may have left them feeling vulnerable before treatment
- ✓ Improved sense of self. People who participate in SIT often find a greater internal sense of self and resiliency and tend to view themselves in a more positive light (Better Help Editorial Team, 2023).

**Meta-analysis of SIT:** As mentioned by Phukan (2017) where the researcher quoted about a Meta - analysis that was conducted by Saunders et al. (1996) to identify conditions that may moderate the effectiveness of Stress Inoculation Training approach. The results of this meta-analysis served as a strong base of the proposed study of inoculating school students against stress. The following were the observations made by the meta-analysis on various moderators of the SIT approach on reducing stress levels and increasing the performance of the subjects.

- *Type of population* – separate analysis of the effects of SIT was conducted for those studies using a high-anxious subject population versus a normal anxiety subject population. SIT was shown to be an effective stress intervention for both high anxiety and normal anxiety subject populations.
- *Number of training sessions* – the beneficial effect of SIT on reducing stress increases with increasing training sessions. However, the data suggest that even a minimal training intervention of one session was likely to produce positive effects. The overall positive effect of Stress Inoculation Training on enhancing performance was not moderated by the number of training sessions.
- *Training setting* – the results of this analysis indicate that the effects of SIT on reducing stress are as strong in the field as in the experimental laboratory.
- *Type of practice* – A separate analysis was conducted of the effectiveness of SIT interventions utilizing imagery versus behavioural skills practice. It was found out that SIT incorporating imagery practice was more effective in reducing stress. However, the behavioural practice of coping skills was more effective for enhancing performance.
- *Group size* – SIT becomes more effective at reducing performance-related stress as the size of the group increases. Therefore, SIT is shown to be effective in reducing performance-related stress in a group setting of moderate size (approximately 7 - 8 trainees), although it becomes more effective as the size of the group increases.
- *Experience of the trainer* – SIT was shown to have a significant impact on reducing stress and enhancing performance whether the training was conducted by a more experienced or a less experienced trainer.

The bird's eye view of the theoretical framework of SIT was illustrated in Figure 5

## Theoretical framework of Stress Inoculation Training (SIT)

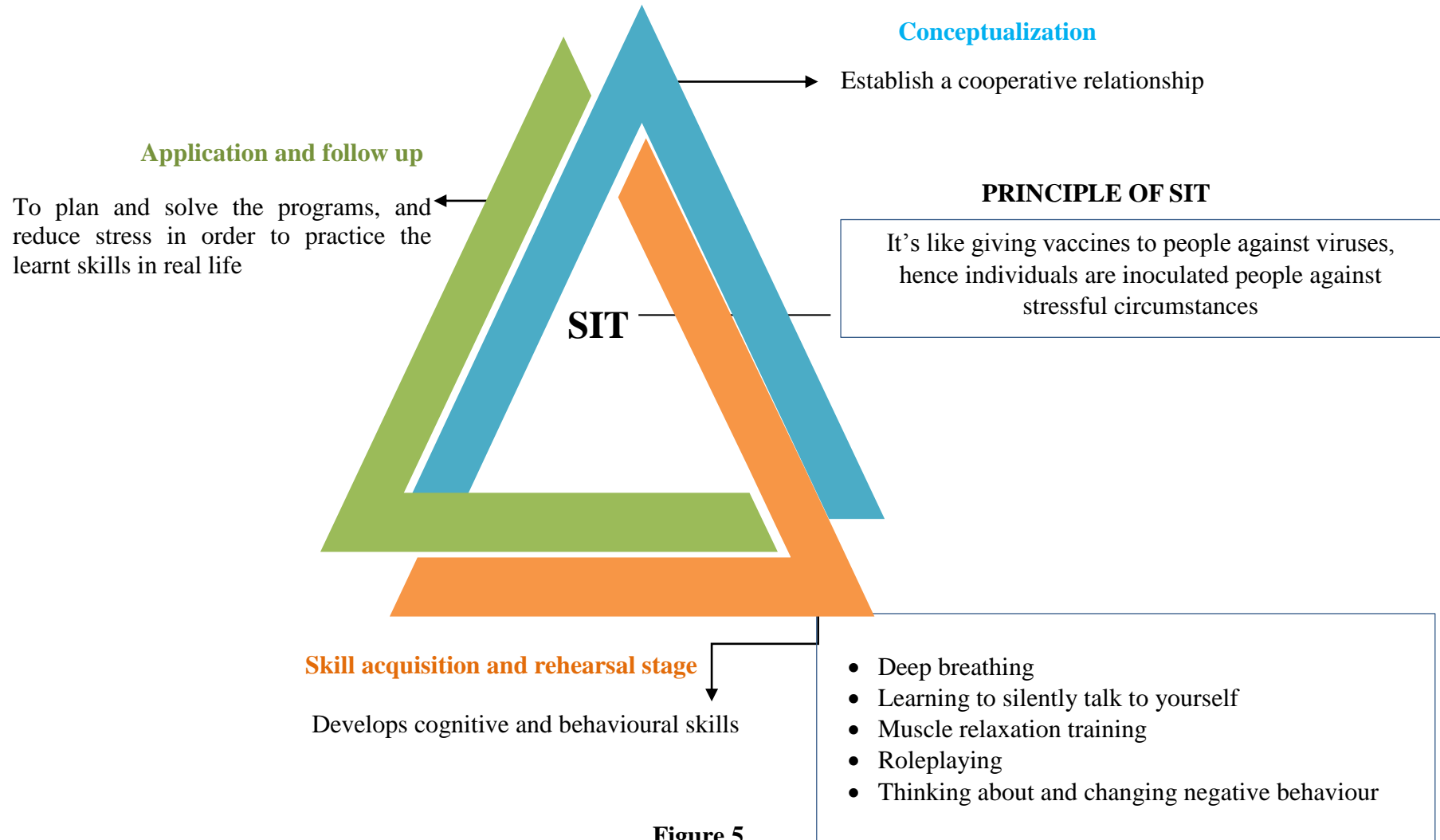


Figure 5

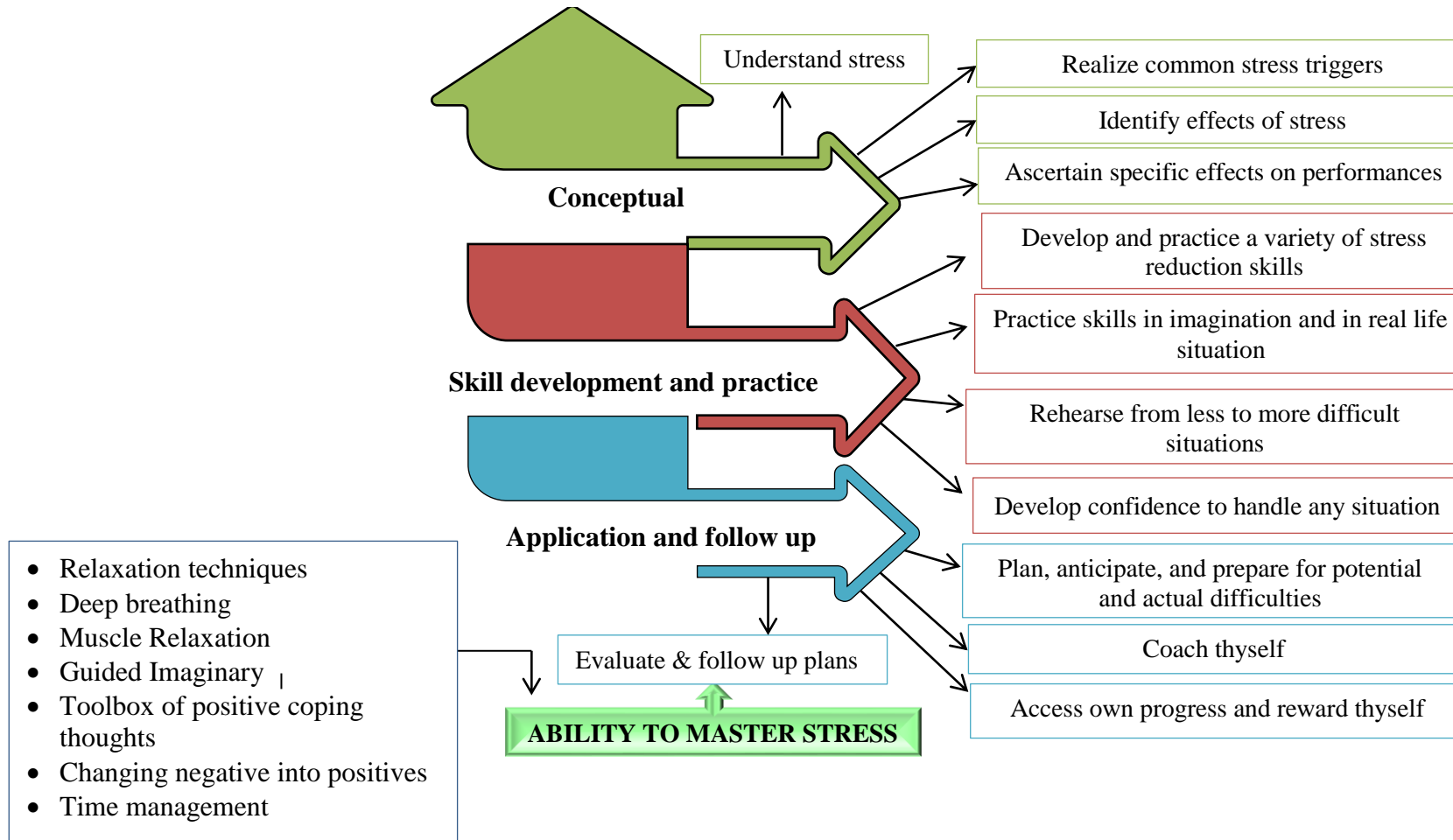
Stress Inoculation Training (SIT) is a different approach of having ‘Inoculation’ aspect within it. It is this intervention that focussed on tasks that must be performed in conditions quite unlike those encountered in the training classroom. Its primary goal is to prepare any individual to maintain effective performance in high stress environment along with ensuring acquisition of required knowledge, skill practice and retention. Whereas with other stress interventions, only the acquisition of knowledge and skill practice would be the goal. Hence SIT is found to be an intervention to enhance familiarity with the criterion environment and teach the skills necessary to maintain effective task performance under stress conditions. With these facts as a base, Maraichelvi (2016) in her study termed Stress Inoculation Training (SIT) as School Stress Inoculation Training (SSIT) with the intention of equipping the school students with stress coping skills and thereby enhancing their overall well-being in terms of reduced stress levels, improved academic performance, and desired attitude change towards better quality of life.

As the term ‘inoculation’ implies, this intervention is designed to impart skills to enhance resistance to stress. SSIT is defined by a three-stage intervention:

- i. Conceptualization or education phase – to better understand the nature of stress, its triggers and effects,
- ii. Skill acquisition and rehearsal – develop and practice a repertoire of coping skills,
- iii. Application and follow through – application and generalization of learnt coping skills.

The bird’s eye view of the theoretical framework of SSIT was illustrated in Figure 6.

**Theoretical framework of School Stress Inoculation Training (SSIT)**



**Figure 6**

Altogether, CBT is a form of psychological treatment which is often combined with cognitive therapy and behavioural therapy where faulty thoughts were identified, challenged and replaced with more realistic thoughts. On the other hand, SIT is a form of training that helps to deal with stress and is much like a vaccine to inoculate against viruses with the main goal to prepare any individual maintain effective performance in high stress environment.

Hence, the investigator made an attempt to combine the two interventions and proposed a pilot preventive intervention within the universal continuum called Comprehensive School-based Intervention Training to alleviate Depression, Anxiety and Stress abbreviated as CSIT-DAS. The researcher perceives that CSIT-DAS would help to have mastery over negative emotions and has the additional advantage as the current research deals with the three negative emotions – Depression, Anxiety and Stress. Proven records of effectiveness of preventive interventions and filling up the lacunae and strengthening the benefits of two preventive interventions – CBT and SIT – the study assumed to identify the potential determinants of DAS and prevent its impact on the lives of the individual. Moreover, as this intervention is to be made in a group setting, the cost-effectiveness is an added value. Accordingly, a theoretical framework of CSIT-DAS was formulated and shown in Figure 7 below.

Theoretical framework of Comprehensive School-based Intervention Training to alleviate Depression, Anxiety and Stress (CSIT-DAS)

70

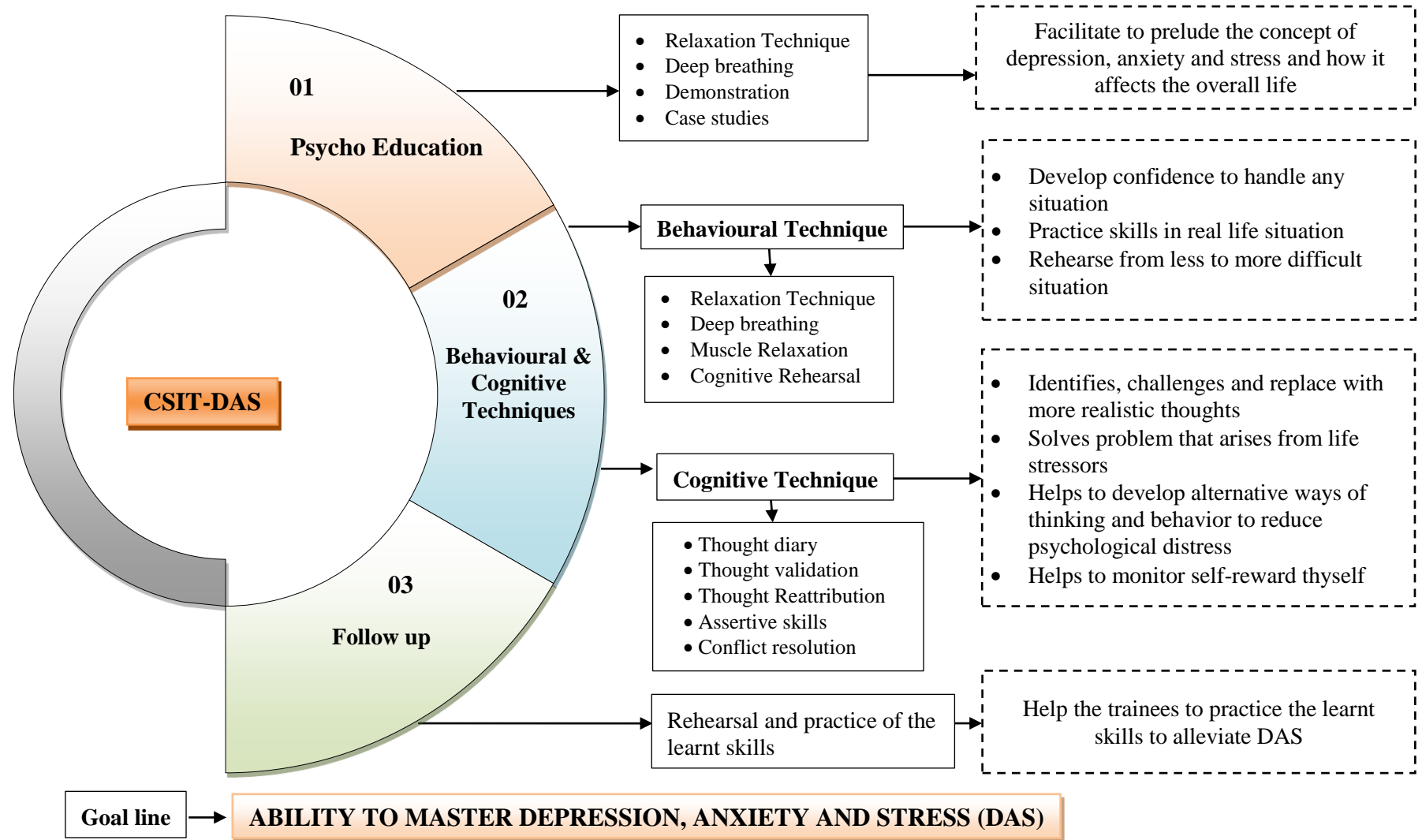


Figure 7

## **E. CONCEPTUAL FRAMEWORK OF THE STUDY**

Based on the literature pertaining to the study of concern, the key problem statement pertaining to the current research are two. First one is that ‘The negative mental states namely Depression, Anxiety and Stress (DAS) is prevalent among the early adolescents.’ Secondly ‘The prevalence of DAS in early adolescents could be minimised by a customised preventive intervention’. Based on these two problem statements a conceptual framework of the study of interest was formulated and illustrated in Figure 8.

The first problem statement has three research questions.

- To know how if the school-going children in their early adolescent period had been affected by negative mental states, if yes, then to which level have they perceived themselves to be depressed, anxious and stressed in their day-to-day life?
- Secondly, is there is any bidirectional relationship of the triad of negative emotional states i.e. DAS and
- Thirdly what were the prominent potential determinants that were alleviating DAS among the school-going children?

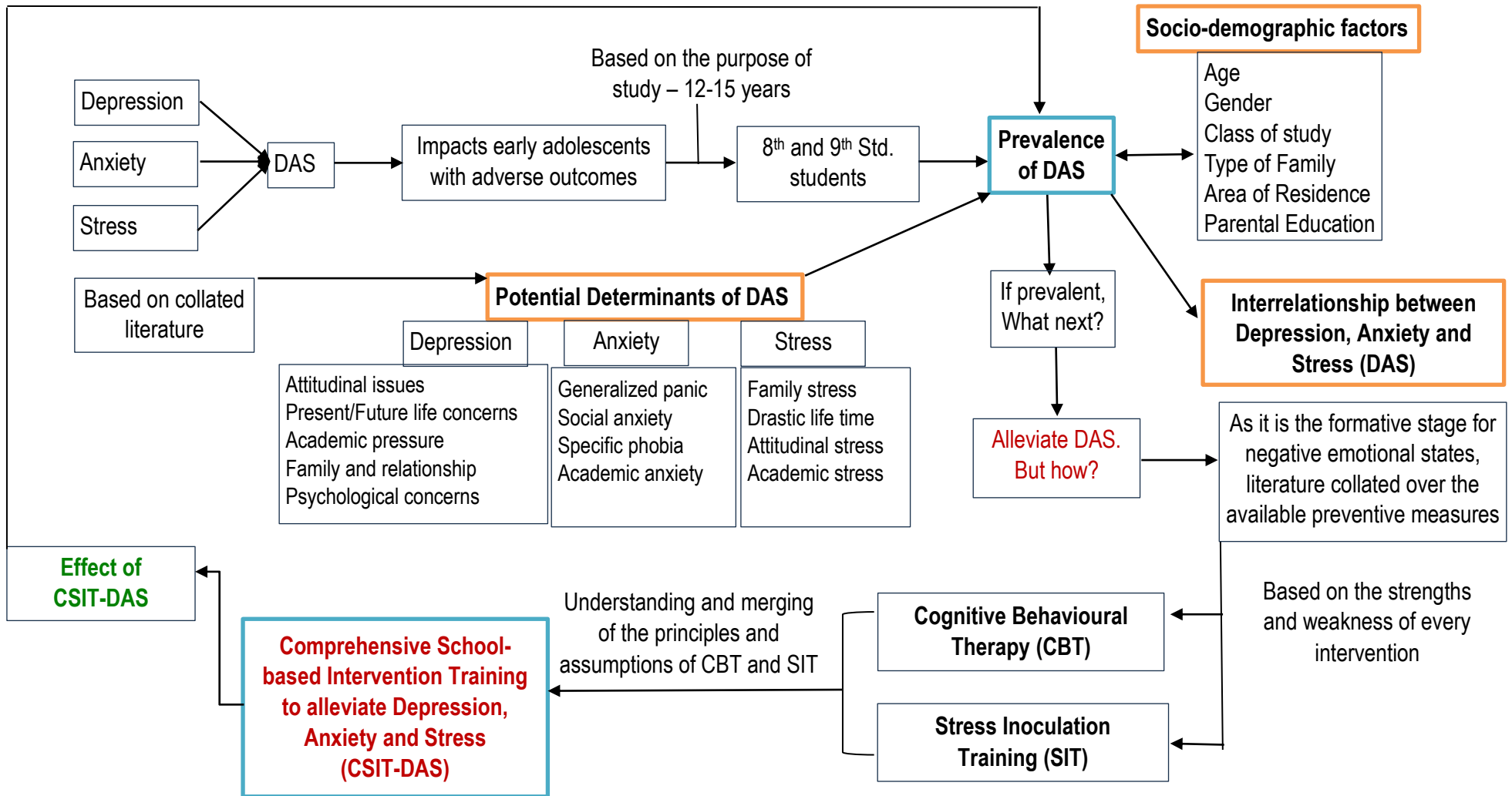
The second problem statement has two research questions.

- Firstly, what type of preventive intervention model would suit the study population to promote the mental health of early adolescents?
- Lastly will the formulated preventive intervention would be effective in alleviating DAS?

With these research questions, the study was conceptualized to explore the prevalence and aetiology of DAS among early adolescents (8<sup>th</sup> and 9<sup>th</sup> standard – Based on the purpose of study – 12-15 years). The Extraneous variables like age, gender, class, types of family, area of residence and parental educational level were used to identify the affect of socio-economic factor upon the levels of DAS. The study also attempts to analyse the potential determinants affecting DAS among the selected respondents. Based on collated literature the determinants chosen for depression were (Attitudinal issues, Present/future life, Academic pressure, Family and Relationship, and Psychological concern); anxiety (Generalized panic, Social anxiety, Specific Phobia anxiety and Academic anxiety); and stress (Family stress, Drastic life time changes, Attitudinal stress and Academic stress).

For the second problem statement, the study attempts to identify and customize a suitable preventive intervention. So, after detailed reviews of various intervention modules available and based on the strength and weaknesses of the interventions the investigator merges the principles and assumptions of CBT (Cognitive Behavioural Therapy) and SIT (Stress Inoculation Training) with the help of experts from various field and aimed to formulate a customized intervention namely **Comprehensive School-based Intervention Training to alleviate Depression, Anxiety and Stress (CSIT-DAS)** with the goal line of capacitating the early adolescents to master DAS.

**Depression, Anxiety and Stress among Adolescents and efficacy of Preventive Intervention**



**Figure 8**