COGNITIVE BEHAVIORAL THERAPY TO REDUCE DEPRESSIVE SYMPTOMS AMONG ADOLESCENTS: EVIDENCE-BASED NURSING

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ABSTRACT

Depressive symptoms in adolescents are injurious and interfere with their daily activities, academic performance and adolescence tending towards suicide. This study aimed to analyze and synthesize evidences related to cognitive behavior therapy in reducing depressive symptoms among adolescents. The author searched related evidences from electronic database of Mahidol University by following the PICO format. The qualities of the selected evidence were appraised in three aspects; validity, reliability and applicability. According to the objective of the study, the author finally selected three RCTs and three quasi experimental design studies, which are relevant, with population, intervention and outcome.

Based on the analysis and synthesis of the seven research evidences, the two models of using CBT for reducing depressive symptoms among adolescents are recommended as follows: (1) Universal school-based program for preventing depression is appropriate for middle adolescents who have no symptoms and have symptoms of depressive symptoms and middle adolescents of secondary school. (2) The indicated school-based program for preventing depression is appropriate for middle adolescents who have elevated depressive symptoms at a mild to moderate level. Each model consists of 2 components, including cognitive and behavioral components. The duration of the each session is 90 minutes and a total 10 sessions were estimated. The outcome of the prevention program should be conducted by using the Child Depression Inventory or the Center for Epidemiologic Studies - Depression scale. It should measure after it ends and periodically, at 3, 6, and 12 month follow-ups. It is suggested that nursing practice guidelines and a manual on cognitive behavior therapy should be developed and implemented to suit the context of the schools' setting.

KEY WORDS: ADOLESCENT / COGNITIVE BEHAVIOR THERAPY / DEPRESSIVE SYMPTOMS / PREVENTION OF DEPRESSION / SCHOOL BASED PROGRAM

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INTRODUCTION

1.1Background and Significance of the study

1.1.1 Prevalence of depression among adolescents

Depression is significant global mental health problem characterized by sadness, loss of interest or pleasure in activities and decreased energy, including loss of confidence and self-esteem, inappropriate guilt, thoughts of death or suicide, diminished concentration, disturbed sleep and appetite loss (Ralph, 2004). According to the World Health Organization, approximately 350 million people suffer depression worldwide which means approximately 4.3% of the total population is living with depression (World Health Organization, 2013). The United Nation's demographic data indicates that 6.9 billion children and adolescents account the total global population and approximately 5.7 billion of these children and adolescents are living in developing countries (United Nations New York, 2011). Adolescence is a great time marked by physical changes in addition to cognitive, social and interpersonal changes with growth and development. Adolescents encounter outside influences such as parents, peers, community, culture, religion, school, world events and the media ("Research Facts and Findings," 2004). Adolescents also have unstable emotions when faced with such changes. Consequently, adolescents feel stressed or confused about producing depressive symptoms.

Many developed and developing countries have shown remarkable prevalence of depressive symptoms among adolescents of child bearing age ranging from 12-19 years and secondary school age. In 2005, a cross sectional survey in the United States reported that 25% of female adolescents and 10% of male adolescents are faced with depressive symptoms in which females are two times more vulnerable than male adolescents (Richardson & Katzenellenbogen, 2004). A mental health fact sheet in Canada published data indicating that 17% of all adolescents (5% males and

12% females) experience depressive episodes from the ages of 12 to 19 years, further stating that females present with depressive symptoms twice more frequently than males (Canadian Mental Health Association, 2014).

In Australia, a statewide survey disclosed data about depressive symptoms among secondary students in Victoria at rates of 23% among girls and 12% among boys where girls experience depressive symptoms twice more frequently than males. Data has also revealed that depressive symptoms amplify with age among adolescents at a rate of 13% in grade 7 students, 20% in grade 9 students and 22% in grade 11 students (McDermott et al., 2010). Hence, the data leads to apprehension about indications that the age of adolescents is an important factor in accelerating depressive symptoms. Other data from rural areas in an Australian community shows the situation among 531 adolescents where depressive symptoms occur at a rate of 18% measured by the Kutcher Adolescent Depression Scale (Black, Roberts & Li-Leng, 2012).

Developing countries also exhibit depressive symptoms prevalence in adolescents as well as school-aged boys and girls. One study conducted in 846 adolescents at a secondary school in Turkey in 2012 revealed depressive symptoms among male and female students at rates of 30.7% and 39.6%, respectively. Hence, the indication is that depressive symptoms are more frequently experienced by female than male students. Moreover, depressive symptoms measured by the Beck Depression Inventory (Unsal & Ayranci, 2008) and another study on adolescents in four Caribbean societies showed 52% mild to severe symptoms of depressive symptoms and 29% adolescents, including both males and females, to demonstrate moderate to severe levels of depression among 1,955 adolescents (Lipps et al. 2012). Filipino adolescents are also facing the same problem with depressive symptoms as other developing countries. One study performed with 2,051 adolescents revealed depressive symptoms within the age range of 17-19 years at 11% among young men and 19% among women (Hindin & Gultiano, 2006). Furthermore, in one research article in Chiang Mai, Thailand, the prevalence of mild, moderate and severe depressive symptoms was 42%, 35.2% and 6.75% respectively, in 800 (400 males and 400 females) students from four public schools (Vatanasin, Thapinta, Thompson, & Thungjaroenkul, 2012). In Malaysia, the Global School Health Survey (GSHS)

reported on 28,738 school students ranging in estimated ages from 12 to 17 years in 234 secondary schools where the rate of depressive symptoms was found to be 17.7% without categorizing the level of depression and a correlation with depression was found among adolescents in Malaysia (Kaur et al., 2014). The study of Chennai in India accounted the prevalence of mild to moderate depressive symptoms at 37.1% and 19.4%, respectively, among 964 adolescents from twenty one secondary schools measured by the self-administered questionnaire of the Beck Depression Inventory (Mohanraj & Subbaiah, 2010).

In Bangladesh, 45% of the children and adolescents combined with 155 million of the total population in the country and 13.4% of school-aged children are suffering from behavioral disorders which discovered from clinical based surveyed and study also found 3.60% adolescent for depressive disorder among them (Sarkar et al., 2008). One study in Rajshahi University, Bangladesh, with findings from the last ten years reported on student depression as girls would express more depressive symptoms than boys and symptoms would be higher in late adolescence than in early adolescence (Huq & Afroz, 2005). However, no national surveys or studies have been conducted on adolescent depression in the country. Hence, the question about the percentage of students suffering with depressive symptoms remains unknown. One nationwide study reported child depression at a rate of 0.95% with an age range of 7-18 years in the Bangladeshi population (Ahmed et al., 2011). Furthermore, the National Institute of Mental Health (NIMH) of Bangladesh conducted a study reporting patterns of psychiatric morbidity at 10-20% of children and adolescents who are suffering different types of emotional and behavioral problems that are sufficiently severe to result in substantial distress or social impairments. After analyzing the above prevalence of depressive symptoms in developed or developing countries, the assumption can be made that adolescents in Bangladesh are similarly affected by depressive symptoms, even though the disorder has not been recognized. Moreover, there is an extreme shortage of child psychiatrists as one study in Bangladesh compared Bangladesh to Brazil where one child psychiatrist deals with 2000 children while 7 million children receive mental health services from one child psychiatrist in Bangladesh (Rahman et al., 2008).

On the above data of the different countries, adolescent depression is the one alarming mental health problem irrespective developed and developing countries. Prevalence of depressive symptoms are reported in different countries in male and female, and also revealed in more studies female is two times more developed than male. Depressive symptoms sharply increasing among adolescent especially ranging age 12-17 years old that period is one transition for their life and occur physical change in addition to cognitive, social and interpersonal changes with growth and development. According to data of developing countries, should be arranged screening program to determine actual figure of adolescents' depression in the secondary school as well as all ages of adolescents and should be taken initiative to prevent and reduce depressive symptoms among country.

1.1.2 Definition and diagnostic criteria for depression

According to the Diagnostic and Statistical manual of the mental disorder (DSM-IV-TR), depression is defined as a clinical disorder characteristics by the presence of one or more depressive episode, depressed or irritable moods or inability to experience pleasure. In addition, at least four of the following symptoms must be present: feeling of guilt, despire and worthlessness; sleep disturbance (insomnia or hypersomnia); appetite or weight changes; attention or concentration difficulties; decrease energy or unexplainable fatigue; psychomotor agitation or retardation and, in severe cases, thoughts and suicide (American Psychiatric Association, 1994). Depressive symptoms are a group of various symptoms based on the diagnosis criteria of DSM-IV-TR, but the severity of symptoms are not meet the criteria of diagnosis.

1.1.3 Impact of Depressive Symptoms

Depressive symptoms in adolescents are injurious with effects on individuals, families and societies in addition to creating uncertain circumstances for the nation. Long-term suffering caused by the depressive symptoms of adolescents is subsequently risky for adulthood as the people who interfere with adolescents' daily activities. Several stressors from the environment are formulated into negative life events which influencing adolescents toward suicidal plans, thoughts and attempts with the eventual outcome of successful suicide. In addition, depression impedes

students in their academic performance and teacher-student relationships with difficulty in paying attention. As a result of these problems, adolescents may discontinue and lose interest in school. Moreover, interpersonal problems seriously affect adolescents while influencing them to withdraw from social relationships with parents, friends and society. In the early lives of adolescents, all problems with depressive symptoms will diminish future life, even though the disorder is preventable and treatable as necessary.

1.1.4 Factors related to depressive symptoms among adolescents

For developed depressive symptoms among adolescents, different factors are related with individual, families and communities as well as environment. Adolescents are involved with school study have several factors influences in depressive symptoms are described below:

1.1.4.1 Demographic factors: Demographic factors, including gender, age, socio-economic status and economic dissatisfaction, etc. are associated with depressive symptoms in adolescents. As a gender, female adolescents experience higher ratios of depressive symptoms than males. For girls, gender difference has been attributed to biological changes associated with puberty where boys are not confronted the same biological problems as females (Undheim & Sund, 2005). In many studies, it has been stated that girls are at greater risk for depression because they face different limitations and psychological problems in puberty as the women of the future. They also have difficulty in expressing themselves during this period. As a result, female adolescents are at greater risk for depressive moods, feelings of low self-worth and self-blame, all of which contribute to the development of more depressive symptoms in female adolescents than males (Unsal & Ayranci, 2008). The ages of adolescents also play an important role in creating depression among adolescents. Moreover, late adolescence has been reported as a significant determinate due to experiences with higher rates of depressive symptoms than early adolescents (Huq and Afroz, 2005). Socioeconomic status and depression in adolescence also has a significant relationship and higher prevalence in young adulthood in low income families. Furthermore, economical dissatisfaction in the family also exacerbates matters for adolescents as they compare to others who are economically stable. Afterward, the adolescents are

feel depression, anxiety, withdrawal and somatic complaints (Agerup, Lydersen, Wallander, & Sund, 2014).

1.1.4.2 Parental factors are also an important factor contributing to depressive symptoms and play a highly significant role in the development of depressive symptoms among adolescent school children. Parental relationships, which develop child ability to create effective coping skills and also help children to build up social competence, autonomy and independence, can greatly reduce the risk for depression. Parental overprotection may result in negative automatic thoughts and ineffective social problem-solving which can contribute to depression among adolescents. These factors indirectly lead to positive effects on depression. Then adolescents feel insecurity, high stress, very negative thinking, introversion, lack of ability to adapt to new situations and fewer effective problem-solving skills, all of which are related to depression (Vatanasin et al.,2012). Parenting style is one of the most important factors influencing adolescents in whom both positive and negative impact might be stem from parenting style because parents are powerful influences over adolescents. Authoritative parenting and neglectful parenting styles can manipulate depression among adolescents especially females (Lipps et al. 2012). Parental depression is also an important component in creating depression among adolescents. Children of depressed parents are highly significantly and four times more likely to develop depression in adolescence. In addition, poor mental health of parents impedes firm relationships with adolescents. Children then gradually experience depression due to poor intra-familial relationships (Adewuya & Ologun, 2006). Internalizing problems with mothers who are depressed, anxious and withdrawn with somatic complaints is strongly associated with the development of depressive symptoms in their children (Agerup et al., 2014). Therefore, depression symptoms in mothers are likely to interfere with parenting quality for many children.

1.1.4.3 Stressful Life Events - Depression alters the minds of adolescents from one important source in the form of stressor factors such as stressful life events. This factor includes serious illnesses in close family members, the death of a close friend, close friendships that are broken and family members who have problems with police with at least one life event during the last year and drug/alcohol problems in families, all of which are significantly related to depression among

adolescent school girls and boys (Waaktaar, Borge, Fundingsrud, Christie, and Torgersen, 2004). During the adolescent period, adolescents would like to be independent from parents. Hence, any loss or helplessness might strongly lead to thinking negative life experiences and increase stressful life events and demonstrate depressive symptoms among adolescent girls and boys.

1.1.4.4 School environment is a very important factor for students, especially adolescent boys and girls. Students spend nearly half of their days in school. Nearly all of the above articles report that school stress, class well-being and teacher support are predicting factors leading to depressive symptoms in adolescents. One study revealed that school stressors are created by school work and age among adolescents whereby 15-year-old adolescents feel more stress than 11-year-old adolescents (Undheim & Sund, 2005).

1.1.4.5 Peer factors are very significant in producing depressive symptoms among adolescent students. These factors begin to evolve when adolescents are faced with poor peer relationships, peer rejection, clique isolation and adolescent problems with peers. According to interpersonal theory, problematic peer relations and depressive symptoms are strongly associated while peer rejection poses greater risk for escalating depressive moods in children and adolescents. Cliques refer to friend-based groups that are distinguished from socio-metric status and dislike other peers; in this way, a negative peer status may still be associated with cliques. Clique isolation deprives student from a sense of group support and collective participation while showing more depressive symptoms than members of cliques. Clique isolation, peer rejection and friendlessness are regarded as distinct peer relation problems, especially for children who are isolated from cliques and consequently experience more depressive symptoms (Witvliet, Brendgen, Lier, & Vitaro, 2010).

1.1.4.6 Intrapersonal factors are highly and directly responsible for building up depressive symptoms among adolescents. Intrapersonal factors consist of loneliness, low self-esteem and negative automatic thoughts. Due to poor peer experiences or peer rejection as well as poor relationships with peer, adolescents feel loneliness that indirectly leads to depressive symptoms and feelings of loneliness mediating the relationship between low social preference in childhood and depressive symptoms (Witvliet et al., 2010). Another study described a sequential link

between loneliness and depressive symptoms, further suggesting that enduring loneliness represents an interpersonal stressor that strongly leads to the formation of subsequent depressive symptoms. One study strongly supports and suggests that peer loneliness is a powerful predicting factor for depression resulting from dissatisfaction with parental relationships (Qualter, Brown, Munn & Rotenberg, 2010). Parental overprotection, both paternal and maternal care, negative life events, interpersonal relationships and rumination, which means ruminating thought styles, create automatic negative thoughts in adolescents. As a result, children feel low self-esteem, personal maladjustment, negative self-concept and despair/helplessness, all of which are strongly significant in developing depression among adolescents (Vatanasian et al., 2012). Physical defects give greater significance to relationships with depressive symptoms among adolescents. Children with physical defects are teased by other friends and thus experience feelings of despair in their minds as the personalities of adolescents are afflicted with feelings of low self-concept and low self-esteem leading to the development of depressive symptoms among adolescents. Hence, unattractive acne is also a predictor of depressive symptoms in adolescent students. This type of problem affects adolescents due to psychological issues, including pain and discomfort, shame, physical image, social assertiveness, obsessive-compulsiveness, embarrassment and social inhibition, all of which are associated with psychological burden and students become strongly depressed (Unsal & Ayranci, 2008).

It is a very complex disorder that comes from multifactor. Adolescents perceive information from social environment in their memory after that they link their thinking, to their feeling and behavior. When they face with a stressor event, they perceive themselves, their future and the world in negative way, then they develop negative automatic thoughts, that leading to low self-esteem and low self-concept. As a result, the adolescents develop depressive symptoms.

1.1.5 Therapy for depressive symptoms among adolescents

Adolescence is a time of vulnerability for increased depressive symptoms with biological, cognitive, behavioral and social-environmental effects. Every adolescent with depressive symptoms is at risk for depressive disorder in adulthood. As data has revealed, 8% to 10% of adolescents exhibit this disorder in their adult lives. In most

cases, the depressive disorder or major depressive disorder of adolescents can be treated by pharmacological treatment combined with psychotherapies. However, evidence significantly reports that adolescents with depressive symptoms can recover well-being only with appropriate psychotherapy (Zack, 2012). Several psychotherapies are available and used for the prevention and reduction of depression by psychiatrists, psychologists and psychiatric nurses as follow:

1.1.5.1 Interpersonal psychotherapy (IPT) is time-limited and focused on interpersonal relationships. IPT also helps relieve symptoms and develops interpersonal functioning (Robertson, Rushton, and Wurm, 2008). This therapy is useful as short-term treatment for adolescents who are suffering with major depression; however, the therapy is not mentioned as standardized therapy in this study. For adolescents aged 12-18 years with depressive symptoms, therapy is suggested for approximately 12 sessions over a period of 3 months and three sessions per week. Interpersonal psychotherapy for adolescents (IPT-A) is Interpersonal Psychotherapy especially developed for adolescent depression and adapted for the developmental needs of adolescents and their families; the therapy is designed for adolescents with mild to moderate depression severity. IPT-A consists of two main tasks such as improving communication skills and problem-solving skills to facilitate reduced depression among adolescents (Mufson, 2010). IPT-A consists of an initial phase (Session 1-4), a middle phase (Session 5-8) and a terminal phase (Session 9-12) (Fombonne, 1998). One meta-analysis revealed the evidence that IPT-A is more significant with medication for adolescents with depressive disorder (Cuijpers et al., 2011). One study examined the effectiveness of IPT-A for adolescent depression in adolescents meeting DSM-III criteria with pharmacotherapy. After 12 weeks of therapy, the patients improved significantly in terms of overall social functioning, functioning with friends and specific problem-solving skills (Mufson, Weissman, Moreau, & Garfinkel, 1999). According to research findings or evidence, it is assumed that interpersonal psychotherapy for adolescents (IPT-A) is effective for depression among adolescents who are clinically suffering with depression. Furthermore, evidence also supports the effects of IPT-A with medication.

1.1.5.2 Physical activity (PA) includes more benefits for adolescents who are suffering with depressive symptoms. Moreover, evidence also

shows in the research literature that there are ongoing relationships between depressive symptoms and physical activity among adolescents. Two types of physical activity are counted as moderate-to-vigorous physical activity and sport team participation. Moderate-to-vigorous PA means activity with relative intensity (e.g. self-reported exertion) or absolute intensity (kilocalories expended per time unit of activity). A total of 19 studies reviewed the research literature in which 18 studies found a strong correlation between physical activity and adolescent depression and only one study found no correlation (Johnson and Taliaferro, 2011).

1.1.5.3 Cognitive Behavior Therapy (CBT) is the most effective psychotherapy for diverse mentally ill patients and is focused on the client's thoughts feelings and behaviors. CBT has components that help to modify the cognitive processes of clients and develops coping patterns. By emphasizing problem-focused therapy, therapists and clients can take an active part in conducting active interventions and reaching goals by doing homework or practicing outside of sessions. CBT is emphasized in two main dimensions, namely, cognitive and behavioral dimensions, after the symptoms of depression arise to alter the thinking of adolescents that influence them to alter their behavior. CBT can help adolescents make sense of real problems and make it easier to realize situations, thoughts, emotions, physical feelings and actions. A large amount of evidence supports CBT as being significantly effective by altering cognitive processes and doing homework after attending the session (Weersing, Lyenger, Kolko, Birmher and Brent, 2006).

Evidence strongly supports cognitive behavioral therapy has able to reduce depressive symptoms among adolescents. One systematic review shows the results of cognitive behavioral therapy as significantly decreased depressive symptoms in order to increase global self-esteem and finds highly significant academic self-concepts among adolescents (Taylor, and Montgomery, 2007). Another systematic review mentioned important information from the National Institute for Health and Excellence (NICE) guidelines on depression in children and young people, adding that the first choice for treating depressive symptoms should not be pharmacological treatment. Rather, psychosocial interventions like cognitive behavior therapy are the best approach. For adolescents who are mildly to moderately suffering, the guidelines strongly support 4-6 sessions of cognitive behavioral therapy. If

improvement is insufficient, additional pharmacological backup can be added (Muno-Solomando, Kendall and Whittington, 2008). One systematic review was composed of 50 randomized control trials in which most of the studies dealt with mild to moderate depressive symptoms in adolescents. According to the findings, no different outcomes were found between individual and group cognitive behavior therapy. Also discussed was the comparison of CBT with family therapy in which CBT was found to be more effective compared with school counseling and interpersonal therapy. Hence, CBT was found effective in reducing depressive symptoms among adolescents (Verduyn, 2011).

CBT is integrated with restructuring the cognition of cognitive therapy and the behavioral modification practice of behavioral therapy. For changes in thought and behaviors, therapists take some sequential steps or processes undertaken by both therapist and client. These steps are goal-directed where therapists and clients play active roles in the session and outside of sessions. Through validity testing, therapists can know the real thoughts and beliefs of clients after exploring assumption. In CBT, therapists guide the clients or individuals to rehearsal cognition by imagining similar situations that he/she can overcome or cope with by knowledge or skillfulness. Hence rehearsals can be carried out in the same way and motivate adolescents to develop problem-solving skills. Daily diary writing is also one best practice for changing client behaviors is where therapists can discuss in the session and encourage adolescents to concentrate on writing which will help the adolescents understand maladaptive thought patterns and be able to recognize thought impact behavior. CBT has a homework technique in which effective role play leads to self-discovery and reinforces individual insight during sessions when therapist and client agree to select some homework such as journaling, reading books, exercise, in-session note-taking, etc. as developed behaviors and coping mechanisms. Next, the therapist will monitor the homework activities at the next session. Role playing exercise is also an important role in recognizing appropriate situations and modifying behavior. By systemic positive reinforcement, clients or individuals are motivated toward positive behavior and therapists always encourage or reward patients who successfully modify their behavior, especially in children with whom this technique is more useful. The last technique is systematic desensitization to improve the client’s feeling of real

phenomena and remove confusion in the mind by practical activity aimed at feeling relaxed and easily coping with situations (McGinn, 2000).

1.2 Clinical problem of the study

Depression is an alarming public health problem for mental health personnel who are engaged in service provision. In Bangladesh, a major portion of the population comprises children and adolescents who are counted as the future of the country. After analyzing related literature, the researcher found adolescents to be suffering with depressive symptoms with no consideration of developed or developing countries. Nevertheless, no research or surveys have been conducted from this country's perspective on adolescent depression. Hence, it is assumed that, as citizens of a developing and middle income country, most of the adolescents are suffering with depressive symptoms silently. Unfortunately, very few psychiatrists contribute to mental health services in Bangladesh where services are very limited for the entire population, including adolescents. One study made a comparison with a middle income country, Brazil, and a scenario of a low income country, Bangladesh. While the child to psychiatrist ratio is approximately 2,000 children to one child psychiatrist in Brazil, 7 million children and adolescents receive services from one child psychiatrist in Bangladesh (Rahman et al., 2008). Nevertheless, a major portion of the population is occupied by children and adolescents with approximately 13.4% of students suffering from various types of behavioral disorders. Moreover, the government pays attention with an annual budget of approximately 0.5% of total expenditures for the health sector in the country (Sarkar et al., 2008).

Psychiatric nurses should play an important role in the care of mental health patients in communities as well as school health settings. Psychiatric nurses are not only responsible for mentally disabled persons, but also take initiative in caring for the relatives of these patients and supporting them in dealing with patients. In the context of Bangladesh, psychiatric nurses are not readily available because very few nurses specialize in this field. In health the service system of Bangladesh, there are no nurses stationed domestically to provide community-based health services. In addition, school nurses are not available. Hence, the services are limited to investigating or

examining the physical condition of school students. Psychiatric nurses should advocate for hospitalized patients and community-based care as well as school settings for those who are suffering with mental problems. Furthermore, psychiatric nurses should follow-up with home visits, visits to the hospital outpatient department and special units by liaising with multidisciplinary teams composed of psychiatrists, psychologists, social workers, occupational therapists and other health professionals.

Depression is a significant public health problem for adolescents, especially school-aged children. Analysis of the data from developed and developing countries definitely indicates that many adolescents are suffering with undiagnosed depressive symptoms. School health services are unavailable in rural areas. Hence, general health examinations are not performed periodically to check up on the physical and mental health conditions of students. Depressive symptoms further reduce the capacity of adolescent students at secondary schools; hence, this developmental stage is a critical time in which necessary action must be taken. Otherwise, this problem will grow in magnitude for adolescents while impairing educational performance and daily activities. Moreover, the country will lose its future generation and increase unexpected situations that are harmful for the population and society. Therefore, the author would like to review the evidence regarding the intervention that can reduce depressive symptoms in middle adolescents and the clinical practice guideline will be developed for depressive symptoms for middle adolescents.

1.3 Purpose of the study

The purpose of the study is to analyze and synthesize evidence-based practice related to cognitive behavioral therapy in reducing depressive symptoms among adolescents.

1.4 Expected benefits of the study

1. The recommendations from the current study will be applied to the development of a cognitive behavioral intervention program aimed at reducing depressive symptoms in adolescents in Bangladesh.

2. Psychiatric nurses in Bangladesh who have been working with adolescents with depressive symptoms will have a program offering school-based service provision.

CHAPTER II
METHODOLOGY

2.1 Search strategy

Search strategy was applied in order to meet the purpose of the study concerning the correlations with the population, intervention and research findings. A search strategy was applied to find articles for analysis and synthesis of the evidence related to cognitive behavioral therapy on reducing depressive symptoms among adolescents. The strategy for searching evidence in articles employed the PICO format with appropriate use of key words. After finding the articles, the evidence in the articles was evaluated by considering the validity, reliability, applicability and level of strength.

2.1.1 Search framework: By using the PICO format, the author searched and selected evidence on reducing depressive symptoms among adolescents by Cognitive Behavioral Therapy as stated in the descriptions below:

P (population) = Adolescents
I (intervention) = Cognitive behavioral intervention / Cognitive behavioral therapy.
C (comparison) = Usual activities.
O (outcome) = Depressive symptoms.

2.1.2 Scope of the search - In order to discover related evidence, the author set the scope for the search by following the PICO format and conducing the search by selecting relevant key words to help find articles. The author followed the steps and employed the scope in the search for articles from database.

1) The following relevant key words were used to search for the evidence:
P (population) = adolescents, youths, teens

I (intervention) = cognitive behavioral intervention, cognitive behavioral intervention program, cognitive behavior therapy (CBT).

C (comparison) = none

O (outcome) = depressive symptoms.

To facilitate discovery of the same elements of PICO, the author used terms with “OR” for synonyms and “AND” to discover relevant PICO elements.

2) The databases/sources used for the search were as follows:

The author searched the electronic database of Mahidol University Library system and also searched for single research studies from Cumulative Index to Nursing and Allied Health (CINAHL), Pro Quest, Science Direct, Pub Med and Springer Link. In addition, the author searched systemic reviews from Cochrane Database of Systematic Reviews and Joanna Briggs Institute Systematic Reviews Database.

3) Types of evidence: The author searched for guidelines, systematic reviews of randomized controlled trials (RCTs), single studies of randomized controlled trials (RCT) and non-randomized controlled trials obtained from full text studies published in English from 2005 to 2014. The evidence included thorough decisions based on following criteria:

a. Evidence collected only in English versions.

b. Publication years were not considered after ten years in the past, namely, beyond 2005 to 2014.

c. The preferred research articles were systemic reviews, randomized controlled trials (RCT), quasi-experimental studies and clinical practice guidelines.

d. The outcome considered in the research articles were only those reducing and preventing depressive symptoms.

e. The desired setting was only school environments rather than clinical settings.

2.2 Appraisal method and levels of evidence

2.2.1 Appraisal Method: The author searched for articles by considering the PICO format and followed the guidelines of Melnyk and Fineout-Overholt (2011) to ensure the validity, reliability and applicability of the research articles capable of providing empirical data related to the purpose of the current study.

1) Validity: Proper use of methodology can assure the validity of the study. For critical evaluation of the study, the author considered risk factors such as influences on the research design and the research findings because bias might distort the research findings and interfere with the research methodology. Potential bias begins with the recruiting process in selecting participants for experimental and comparison groups. Hence, the researcher should take steps toward randomly assigning the process in order to ensure that confounding variables that would easily compromise the findings and bias are removed. Randomization is essential to experimental studies such as randomized controlled trials because different outcomes are expected from two groups involved in intervention and comparison. Therefore, randomization can yield accurate results after analysis. The demographic data of the participants should be similar at baseline; if any differentiations are available in the intervention or control group, the outcome will be inaccurate and ambiguous. The researcher should keep in mind that all participants are willing to take part in the study; otherwise, the findings will be distorted if some participants prefer not to attend or choose to drop-out before the end of the analysis. The researcher should also conceal the intervention and control groups from each other for participants and those the evaluating outcomes of the study in order to minimize bias. To evaluate the validity of the study, the author should critically follow the measurement procedures in order to determine whether or not the instrumentation is appropriate for measuring the outcome. If the measurement instrumentation is unable to provide accurate results, a measurement bias will be determined. During the appraisal of the evidence, the author considered the different factors at risk for distorting the findings and ensured the validity of the evidence.

2) Reliability: This factor depends upon whether or not the validity is strongly determined by appraisal. The author kept in mind the effect size of

the outcome differences between the intervention and comparison groups. Furthermore, the author considered the p value and confidence interval when the research revealed data from the analysis. The large effect size and wide confidence interval were analyzed for application to the author's own practical setting for the study. The findings were accepted when the findings were revealed by trials and reported to confirm statistically significant differences between the intervention and comparison groups. Intervention effectiveness was strongly justified by following the significance of findings as demonstrated by statistical significance. If the findings are consistent across different settings, clinicians can be more confident that the findings are reliable.

3) Applicability: After appraising the validity and reliability, the author decided about the applicability of the evidences in the author's own setting. Application of the evidence requires consideration about the population while also keeping in mind the values, concerns and choices of the participants which are similar to the author's own research population. Interventions were applied for those populations that were similar with consideration of the effectiveness that was applicable to the practical setting. Intervention cost-effectiveness and potential harm were also analyzed during the appraisal to ensure that the application of the program could be designed and policy makers included in order to implement the intervention among the target population.

2.2.2 Evaluation of the strength of the evidence: The strength of the evidence was selected by applying the criteria suggested by Melnyk and Fineout-Overholt (2011) named the "Rating System for the Hierarchy of Evidence for Intervention/Treatment Questions" and the levels of strength were stated as follows:

Level 1: Evidence from a systematic review or meta-analysis of all relevant RCTs.

Level II: Evidence obtained from well-designed RCTs.

Level III: Evidence obtained from well-designed controlled trials without randomization.

Level IV: Evidence from well-designed case-control and cohort studies.

Level V: Evidence from systematic reviews of descriptive and qualitative studies.

Level VI: Evidence from single descriptive or qualitative studies

Level VII: Evidence from the opinions of authorities and/or reports of expert committees.

Search strategies are essential to direction in discovering appropriate evidence from electronic databases and different websites. The PICO format is helpful in discovering evidence related to target populations with selected interventions and outcomes that were mostly concurrent with the purpose of the study. According to the purpose of the study, the search procedures were applied as PICO with synonyms to discover evidence from the electronic database of Mahidol University. After finding adequate articles meet the inclusion criteria, the articles were evaluated in terms of validity, reliability and applicability with statements on the strength for the evidence according to the types of articles.

CHAPTER III
FINDINGS

The clinical problem guided the author to identify keywords for searching the evidences by using PICO format. Different database were available for the author's use in the search. After that, several article were discovered, the author selected the articles by considering the appraisal criteria

3.1 Search results

Seven research studies matched the quality criteria and were finally selected. Table 1 shows the details of the samples of evidence-based practice and level of strength as proposed by Melnyk and Fineout-Overholt (2011)

Table 3.1 Selected evidences, research design, and strength of the evidences:

Order	Author, title, and source of publication	Study design	Level of strength of evidence
1.	Possel, P., Baldus, C., Horn, A. B., Groen, G., and Hautzinger, M. (2005). Influence of General Self-Efficacy on the Effects of a School-Based Universal Primary Prevention Program of Depressive Symptoms in Adolescents: a Randomized and Controlled Follow-Up. *Journal of Child Psychology and Psychiatry,* 46:9, 982-994	Randomized controlled trial	Level II

Table 3.1 Selected evidences, research design, and strength of the evidences (cont.).

Order	Author, title and source of publication	Study design	Level of strength of evidence
2.	Possel, P., Adelson, J. L. & Hautzinger, M. (2011). A Randomized Trial to Evaluate the Course of Effects of a Program to Prevent Adolescent Depressive Symptoms over 12 Months. *Behavior Research and Therapy,* 49, 838-851	Randomized controlled trial	Level II
3.	Vuthiarpa, S., Sethabouppha, H., Soivong, P. & Williams, R. (2012). Effectiveness of a School-Based Cognitive Behavioral Therapy Program for Thai Adolescents with Depressive Symptoms. *Pacific Rim International Journal of Nursing Research.* 16(3), 206-221.	Quasi-experimental study	Level III
4.	Wong, P. W. C., Fu, K. W., Chan, K. Y. K., Chan, W. S. C., Liu, P. M. Y., Law, Y. et al. (2102). Effectiveness of a Universal School-Based Program for Preventing Depression in Chinese Adolescents: A Quasi-Experimental Pilot Study. *Journal of Affective Disorder,* 142, 106-114	Quasi-experimental study	Level III

Table 3.1 Selected evidences, research design, and strength of the evidences (cont.)

Order	Author, title and source of publication	Study design	Level of strength of evidence
5.	Mi Kyung, S. (2012). Effects of a School-Based Intervention Program for Middle School Adolescent Girls with Depression: As Part of the School Health Services. *Journal of Korean Academy of Nursing*, 42(7), 984-991.	Pretest-posttest repeated measure design	Level III
6.	Wijnhoven, L. A. M. W., Creemers, D.H. M., Vermulst, A. A., Scholte, R. H. J. & Engels, R. C.M. E. (2014). Randomized Controlled Trial Testing the Effectiveness of a Depression Prevention Program (‘Op Volle Kracht’) among Adolescent Girls with Elevated Depressive Symptoms. *Journal of Abnormal Child Psychology,* 42:217-228	Randomized controlled trial	Level II
7.	Gramy, P., Jakobsson, U., Casson, K. S., Berg, A., and Clausson, E. K. (2014). Evaluation of a School-Based Program Aimed at Preventing Depressive Symptoms in Adolescents. *The Journal of School Nursing,* 1-9,	Quasi-experimental study.	Level III

3.2 Data extracted from the seven articles selected

Article number 1

Title: Influence of General Self-Efficacy on the Effects of a School-Based Universal Primary Prevention Program of Depressive Symptoms in Adolescents: A Randomized and Controlled Follow-Up.

Author: Possel, P., Baldus, C., Horn, A. B., Groen, G., and Hautzinger, M.

Publication source and year: Journal of Child Psychology and Psychiatry. (2005)

Objectives: To evaluate the effects of a school-based universal primary prevention program on depressive symptoms in adolescents.

Method: The study was designed as a randomized controlled trial and conducted in middle schools in the area of Tubingen, Germany. Six secondary schools were included in the study and subjects were randomly assigned to the training group and control group each from total of 347 students was recruited.

Inclusion Criteria: Eighth graders students were recruited as participants.

Measurement: The Center for Epidemiological Studies – Depression Scale (CES-D) was used to measure current depressive symptoms based on self-reports. The CES-D contains 20 items with four-point scales ranging from 0-3.

Intervention: The universal primary prevention program was based on social information processing and the methods used were taken from cognitive-behavioral therapy. The prevention program addressed cognitive and social aspects including the following: a) Illustrating the relationships between cognition, emotion and behavior; b) Exploring and changing dysfunctional cognitions. c) Assertiveness training; d) Training in social competence.

The prevention program was designed for weekly sessions over a 10-week period within the context of regular sessions and one session consisting of two lessons for 1.5 hrs. The sessions for the program were delivered by a group method in which one group contained 8-24 students and was carried out by one trainer and one co-trainer who were master's degree psychologists and graduate students who were experienced in working with adolescents.

Results

a) At the 3-month follow-up, depressive symptoms and low self-efficacy were significantly lower in the training group (n = 42, mean = 12.02, SD = 6.18) than the control group (n = 30, mean = 17.17, SD = 7.65), F(1, 156) = 10.21, p<.01, g = .75 (95% CI for effect size =.26 – 1.24).

b). Depressive symptoms and low self-efficacy significantly increased in the control group between post-assessment (n=30, mean= 13.93, SD= 7.44) and 3-month follow-up (n = 30, mean = 17.17, SD= 7.65). F(1, 156) = 5.91, p<.05, g = .43 (95% CI for effect size = -.09-.95).

Article number 2

Title: A Randomized Trial to Evaluate the Course of Effects of a Program to Prevent Adolescent Depressive Symptoms over 12 Months

Authors: Possel, P., Adelson, J. L. & Hautzinger, M.

Publication source and year: Behavior Research and Therapy, (2011).

Objectives: To examine the effects of a universal prevention program on depressive symptoms at post intervention, 6-month follow-up and 12-month follow-up.

Method: The study design was a randomized controlled trial and 301 adolescents were recruited from four middle schools in Southwest Germany. The intervention and control groups were assigned at 163 and 138, respectively with random assignment. The intervention and control group participants' mean ages were 13.73 years and 13.63 years, respectively. The intervention group received LARS & LISA and he control group received routine academic lessons.

Inclusion criteria: Students of secondary schools and 8th grade students of both male and female gender with a wide range of social classes allowed among the participants.

Exclusion criteria: Students who dropped-out from the study before finishing.

Measurement: The Self-Report Questionnaire-Depression (SBB-DES) consists of 26 items and 4-point Likert scales. This instrument was designed for children and adolescents in order to measure the severity of major depression and

dysthymia symptoms as outlined by DSM-IV and ICD-10. A knowledge test (secondary outcome) was used to measure the knowledge about the cognitive and social content of the prevention program. Strength and Difficulties Questionnaire (secondary outcome) was used to measure the psychological adjustment of 11-16 year-old adolescents.

Intervention: LARS & LISA is a universal primary prevention program composed of social information processing. The following five stages were included in program 1) encoding; 2) mental representation; 3) response accessing; 4) response evaluation and selection and 5) enactment with one session added to the motivation section.

The five cognitive components included the following:

1. Stage of mental representation.
2. Response accessing.
3. Response evaluation and selection

Four social components included the following:

1. Response accessing
2. Response evaluation and selection
3. Enactment

The program was administered once a week over a 10-week period during school periods for a total 1.5 hrs. per session in the classroom. The intervention group received information from a group leader who had a master's degree in psychology or graduate students experienced in working with adolescents.

Data analysis: Data were analyzed by using a series of 3-level hierarchical linear model HLMs at a baseline of 0 months and at follow-ups of 3, 6, 9, 12 and 15 months.

Results: The effects of the intervention showed in the girls' rate of acceleration ($p < 0.05$), thereby indicating that the rate of acceleration for the girls in the intervention group was significantly lower than the rate of acceleration for the girls in the control group.

The intervention effectiveness was statistically not significant in either the intervention or the control group of boys during the intervention from post-

intervention to the 6-month follow-up with even more depressive symptoms than baseline at the 12-month follow-up.

Article number 3

Title: Effectiveness of a School-Based Cognitive Behavioral Therapy Program for Thai Adolescents with Depressive Symptoms.

Author: Vuthiarpa, S., Sethabouppha, H., Soivong, P. & Williams, R.

Publication source and year: Pacific Rim International Journal Nursing Research. (2012).

Objectives: To evaluate the effectiveness of a 12-week, school-based CBT program for reducing depressive symptoms and negative automatic thought, while enhancing social functioning.

Method: The quasi-experimental study was conducted in two public high schools where the intervention and control groups were randomly allocated equal numbers of subjects from 1,350 students. The age, gender, GPA and depressive symptoms matched among the participants and no significant differences were discovered in either the intervention or control group. The intervention group received the school-based cognitive behavior therapy program and the control group received routine lessons only.

Inclusion criteria: Adolescents aged 14-17 years with mild to moderate depressive symptom scores of 16 to 24 on the Center for Epidemiologic Studies Depression Scale (CES-D) and participants who had a single parent or legal guardian.

Exclusion criteria: A history of severe depression (score CES-D is > 24)

Measurement: The Center for Epidemiologic Studies Depression Scale (CES-D) contains 20 items and 4-point Likert scales.

The Children's Automatic Thought Scale (CATS) contains 40 items to assess negative beliefs across internalization and externalization difficulties and negative automatic thought.

The Self-report Child and Adolescent Social and Adaptive Functioning Scale (CASAFS) were used to examine the adolescents' social and adaptive functioning and contains 24 items.

Intervention: The cognitive behavioral therapy program applied the key and concepts constructs from original manual on Cognitive Behavior Therapy (CBT) and modified to be a school-based CBT program. The entire intervention involved assembling the processes of CBT with cognitive and behavioral contents.

This program focused on Thai adolescents' behavioral and social activities such as role-playing, discussion-related topics, learning tasks and homework. Furthermore, the contexts of Thai adolescent depression, learning, living styles and culture were also covered. The CBT program consisted of 12 sessions for 12 weeks, the sessions lasted for one hour per week and the session was administered by a group (5-10 participants per group). The program was delivered by the Primary Investigator (PI) who was a registered nurse with a PhD and conducted and monitored each session. The sessions of the program were applied by role-playing, discussion-related topics, learning tasks and homework.

Data analysis: Multivariate analysis of variance (MANOVA) was used for testing the differences in depressive symptoms, negative automatic thought, and social and adaptive functioning between the experimental and control groups.

Results: The experimental group's depressive symptoms and negative automatic thought were significantly lower than the control group after the intervention at six weeks after starting the program, immediately after program completion and four weeks after program completion (depressive symptoms F= 19.97, df= 1, $p < .001$ and negative automatic thought F= 8.06, df= 1, $p = .006$). In addition, the experimental groups' social and adaptive functioning were also significantly improved over time compared to the control group (F= 4.34, $p < 0.05$).

Article number 4

Title: Effectiveness of A Universal School-Based Program for Preventing Depression in Chinese Adolescents: A Quasi-Experimental Pilot Study

Authors: Wong, P. W. C., Fu, K. W., Chan, K. Y. K., Chan, W. S. C., Liu, P. M. Y., Law, Y. et al.

Publication source and year: Journal of Affective Disorder, (2012)

Objectives: To examine the effectiveness of a universal depression prevention program, "The Little Prince is Depressed" (LPD), in reducing depressive

symptoms and enhancing protective factors of depression among secondary school students in Hong Kong.

Method: The study was designed as a quasi-experimental pilot study in 13 students from four secondary schools.

Inclusion criteria: Students aged between 14-16 years equivalent to Grade 9 who had completed the pre-test questionnaire. The researchers provided an identification code for all participants.

Measurement: The Depression Anxiety Stress Scale (DASS21) contains 14 items with 7 levels per scale.

Intervention: A universal school-based program for preventing depression among adolescents. This program was developed based on problem-solving, communication, interpersonal skills, conflict resolution, anger management and positive coping.

The program was categorized into two phases for implementation, namely, the professional-led program (with trained social workers) and the teacher-led program (teachers who were observers in the first phase of the program) and consisted of 12 sessions with 45 to 60 minutes per session during regular school hours in the classroom.

Data analysis: Pre-test, post-test analysis and post-test scores were analysis by linear regressed on the intervention effect. T-test was used to analyze the differences between two groups in which no significant difference was found in gender distribution or pre-test measurements between the intervention and control groups.

Results: After the intervention, the attitudes about help seeking and self-esteem were significantly increased ($p=0.04$) in the intervention group and higher than the control group. Significant differences appeared to be higher than the control group for the depressive symptoms of the intervention group in cognitive restructuring ($p=0.03$) and support seeking ($p= 0.02$).

Article number 5

Title: Effects of A School-Based Intervention Program for Middle School Adolescent Girls with Depression: As Part of the School Health Services.

Author: Mi Kyung, S.

Publication source and year: Journal of Korean Academy of Nursing, (2012)

Objective: To evaluate the effects of a school-based intervention program for middle school adolescent girls with depression.

Method: The study was based on a pretest-posttest repeated-measure design and samples were selected from 340 students at two middle schools in a large urban area of Seoul, Korea. The intervention group received a school-based intervention program and the control group received routine care in the school setting.

Inclusion criteria: 8^{th} grade female students with mild to severe depressive symptom scores above 76 on the Reynolds Adolescent Depression Scale, second edition; Korea (RADS-K). Students who had no history of diagnosis of any psychological problems.

.**Measurement:** The Reynolds Adolescent Depression Scale (second edition) Korean (RADS-K) was used to measure levels of depression at pre-intervention and post-intervention. The scale contained 30 items and 4-point Likert scales including four dimensions of adolescent depression and related symptomatology, namely, sadness, crying behavior, loneliness, irritability, worry and self-pity.

Intervention: The school-based intervention program was developed based on various components such as cognitive restructuring, cognitive strategies and social skills training. The program mainly addressed knowledge about depression, self-evaluation, and coping strategies for prevention of depression.

The program consisted of 10 sessions for 10 hours once a week and every session included over three sessions of individual online counseling. Multiple teaching methods such as lecture, case method, small group discussion and poster presentation and counseling by e-mail, and also utilized multimedia and video were used to implement the prevention program

Data analysis: The intervention effect was evaluated by t-test and repeated measure analysis of variance with the time of testing as the repeated-measure factor and the treatment team and group as the mediating subject factors performing the intervention.

Results: In the experimental group depression was largely improved from baseline to 10 weeks of intervention and at 10 to 13 weeks with slight positive changes following..

Pretest: mean=85.47, SD= 7.97, t = 0.97, p= .338,

Posttest: mean=77.0, SD= 11.75, , t = -2.47, p= .017,

Follow-up: mean=74.23, SD=10.82, , t = -3.79, p <.001.

The other subscale on depressive symptoms such as dysphoria (F= 5.90, p= .004), anhedonia/negative affect (F=6.43, p= .002) were significantly improved after completion of the intervention with decreased negative self-evaluation (F=14.40, $p<.001$).

Article number 6

Title: Randomized Controlled Trial Testing the Effectiveness of a Depression Prevention Program (‘Op Volle Kracht’) among Adolescent Girls with Elevated Depressive Symptoms.

Authors: Wijnhoven, L. A. M. W., Creemers, D.H. M., Vermulst, A. A., Scholte, R. H. J. & Engels, R. C.M. E.

Publication source and year: Journal of Abnormal Child Psychology, (2014)

Objectives: To examine the effects of the Cognitive Behavioral Therapy (CBT) component of the depression prevention program ‘Op Volle Kracht’ (OVK) among Dutch adolescent girls with elevated depressive symptoms.

Method: The study was designed as a randomized control trial and recruited 102 girls from three secondary school of Netherland for experimental and control groups.

Inclusion criteria: Adolescents ranging in age from 11 to 15 years as first and second year secondary school students who had elevated depressive symptoms (CDI score ≥ 16)**.**

Exclusion criteria: The students who had CDI score > 19 with a score of 2 on item 9 and were already receiving mental health care with suicidal ideations.

Measurements: The Child Depression Inventory (CDI) for measuring depressive symptoms every four weeks; the instrument contains 27 items with 3-point scales ranging from 0-2.

The Epidemiological Studies Depression Scale (CES-D) was used in the study for measuring fluctuating depressive symptoms during the intervention period every week. The instrument contained 20 items measured on 4-point scales ranging from 0 to 3.

Intervention: The prevention program with the cognitive behavior therapy component of 'Op Volle Kracht' was designed with a total of 8 lessons. In the first 4 (four) lessons, the participants learned about thoughts and feelings as well as the relationships among stressful life events, negative thoughts and negative feelings. In the last 4 lessons, they learned to search for evidence to support or reject the negative thoughts, formulate more optimistic thoughts, test the accuracy of negative thought by formulating the worst, best and most probable consequences of an event.

The program included 50-minute weekly sessions. One experienced group therapist conducted the session with the adolescents who were divided into four different groups.

Data analysis: The latent Growth Curve Modeling Analysis (LG CM) using the statistic package, M-plus version 6.11, was used to examine the changes in depressive symptoms from T-0 to T-16. T-test for independent groups was used to examine the differences in depressive symptoms between the experimental and control groups at T-0, T-4, T-8, T-12 and T-16.

Results: The OVK program significantly reduced more depressive symptoms in the experimental group than in the control group with the following CDI scores:

1) CDI T-4: Mean = 15.82 SD = 6.62 vs. Mean = 9.31, SD = 6.74, t-value = 2.62 df = 98 and $p \leq 0.01$.

2) CDI T-8: Mean = 15.02, SD = 8.37 vs. Mean = 18.04 SD = 6.47 t-value = 1.95 df = 91 $p \leq 0.05$

3) CDI T-12: Mean = 13.61 SD = 8.53 vs. Mean = 18.24, SD = 7.40, t-value = 2.78, df = 89 and $p \leq 0.01$

4) CDI at 6-month follow-up: Mean = 11.70 SD = 8.24 vs. Mean = 17.77 SD = 8.17, t value = 3.39 df = 83 $p \leq 0.01$

Article number 7

Title: Evaluation of a School-Based Program Aimed at Preventing Depressive Symptoms in Adolescents.

Authors: Garmy, P., Jakobsson, U., Carsson, K. S., Berg, A. & Clausson, E. K.

Publication source: The Journal of School Nursing, (2014).

Objective: To evaluate the implementation of a universal school-based cognitive behavioral program whose target is to prevent depressive symptoms in adolescents.

Method: The study was based on a quasi-experimental design with pretest, posttest, and a 1-year follow-up; the study was conducted at one school in southern Sweden with 2,700 inhabitants and 62 students who were recruited to the study.

Inclusion criteria: The participating students were recruited at 14 years of age among eighth-grade students comprising boys and girls.

Measurement: The Center for Epidemiological Studies Depression Scale (CES-D) is a self-reported measure with a total possible score ranging between 0 and 60.

Intervention: The universal school-based cognitive behavioral program was based on cognitive behavioral techniques for changing negative automatic thoughts, communication training and problem-solving strategies with exercises to strengthen social skills and social networks.

The program session was conducted by school nurses, school social workers and teachers, all of whom had undergone three days of training and one day of supervision in the method. Every course had two tutors and the group contained 10-18 students each. The group session was designed in 10 sessions with once class a week for 10 weeks and 1.5 hrs estimated for each class during the same week day in the conference room in the school.

Data analysis: Chi-square was used to measure differences in the CES-D scores between pre-intervention, post-intervention and 12-month follow-up. Wilcoxon signed-rank tests were used for post hoc analysis.

Results: On the based on CES-D score, girls are significantly changed from pre-intervention to post-intervention and at the 12 month follow-up (p = .018). Boys are changed in pre-intervention to post-intervention (p=.008) but at the 12 month follow-up, the effect of intervention was not appear among them. The school-based cognitive behavioral program is significantly effective to prevent depressive symptoms in adolescents.

3.3 Summary of evidences appraisal

Seven research evidences as aforementioned were critically appraised for their validity, reliability and applicability using the criteria of Melnyk and Fineout-Overholt (2011) as stated in Chapter II. The author confirmed the accuracy of his appraisal with the major advisor and co-advisor. The result of the appraisal revealed that all evidences were conducted in scientific procedure. The results of each research were relevant with the clinical issues of this study and can be applied in the authors' clinical setting.

Table 3.2 Collective Table for the seven articles

Components	**Article 1** **Possel et al. 2005**	**Article 2** **Possel et al. 2011**	**Article 3** **Vuthiarpa et al. 2012**	**Article 4** **Wong et al. 2012**	**Article 5** **Mi Kyung, S. 2012**	**Article 6** **Wijnhoven et al. 2014**	**Article 7** **Garmy et al. 2014.**
Objectives	To evaluate the effects of a school-based universal primary prevention program on depressive symptoms in adolescents.	To examine the effects of a universal prevention program on depressive symptoms at post intervention, 6-month follow-up, and 12-month follow-up	To evaluate the effectiveness of a 12-week, school-based CBT program for reducing depressive symptoms and negative automatic thought, and enhancing social functioning.	To examine the effectiveness of a universal depression prevention program, "The Little Prince is Depressed" (LPD), to reduce depressive symptoms and enhance protective factors of depression among secondary school students in Hong Kong.	To evaluate the effects of a school-based intervention program for middle school adolescent girls with depression.	To examine the effects of the Cognitive Behavioral Therapy (CBT) component of the depression prevention program 'Op Volle Kracht' (OVK) among Dutch adolescent girls with elevated depressive symptoms.	To evaluate the implementation of a universal school-based cognitive behavioral program whose target is to prevent depressive symptoms in adolescents.
Sample	8th grade (boys and girls) students of middle schools with mean ages of 13.82 and 14.18 years in the	8th grade male and female students of secondary school with estimated mean ages of 13.73	The adolescents' age ranged from 14-17 years with mild to moderate depressive symptoms.	Participants (boys and girls) ages were estimated from 14 to 16 years at the	8th grade middle school students (girls) with depressive symptoms and	Girls aged 11-15 years with depressive symptom scores of 16-19 by CDI	8th grade male and female secondary school students aged 14 years.

Table 3.2 Collective Table for the seven articles (cont.)

Components	**Article 1** **Possel et al. 2005**	**Article 2** **Possel et al. 2011**	**Article 3** **Vuthiarpa et al. 2012**	**Article 4** **Wong et al. 2012**	**Article 5** **Mi Kyung, S. 2012**	**Article 6** **Wijnhoven et al. 2014**	**Article 7** **Garmy et al. 2014.**
	training group and the control group, respectively.	and 13.63 years in the intervention and control groups, respectively.		pretest.	scores above 76 by RADS-K (mild to severe depression)	and studying in secondary schools.	
Intervention	A cognitive-behavioral school-based universal primary prevention program.	Universal Primary prevention program LARS&LISA.	School-based Cognitive Behavioral Therapy Program	A universal depression prevention program, "The Little Prince is Depressed (LPD)	A school-based intervention program.	'Op Volle Kracht' is an indicated school-based depression prevention program.	A school-based cognitive behavioral program
Primary Outcome	Depressive symptoms	Depressive symptoms	Depressive symptoms	Depressive symptoms	Depressive symptoms.	Depressive symptoms	Depressive symptoms
Secondary outcome	Dysfunctional thoughts, social support, self-efficacy.	Knowledge, psychological adjustment.	Negative automatic thought, social and adaptive functioning.	Self-esteem, social support, coping behaviors and thoughts.			
Measures of primary outcome	CES-D	SBB-DES	CES-D	DASS21	RADS 2nd edition.	CDI. and CES-D	CES-D

Table 3.2 Collective Table for the seven articles (cont.)

Components	**Article 1** **Possel et al. 2005**	**Article 2** **Possel et al. 2011**	**Article 3** **Vuthiarpa et al. 2012**	**Article 4** **Wong et al. 2012**	**Article 5** **Mi Kyung, S. 2012**	**Article 6** **Wijnhoven et al. 2014**	**Article 7** **Garmy et al. 2014.**
Results	Depressive symptoms and self-efficacy significantly lower in the training group than in the control group.	The intervention significantly affected the girls by reducing more depressive symptoms in the experimental group than the control group but with no statistically significant changes among the boys.	In intervention phase, more depressive symptoms decreased significantly in the experimental group than the control group.	On the whole, depressive symptoms were significantly lower in the experimental group than in the control group.	Significant changes occurred in the intervention group for depressive symptoms than comparison group in baseline to post-intervention and follow-up test.	Experimental group exhibited significantly lower level depressive symptoms than control group at T4, T8, T12 and at 6 month follow-up.	The CES-D scores of the females significantly changed from pre-intervention to post-intervention and the 12-month follow-up.

Remark: CES-D= Center for Epidemiological Studies - Depression.

SBB-DES= Self-Report Questionnaire – Depression.

RADS = The Reynolds Adolescent Depression Scale, 2nd edition.

CDI = Child Depression Inventory.

Table 3.3 Collective table of school-based CBT program for adolescents

Components	**Article 1** **Possel et al. 2005**	**Article 2** **Possel et al. 2011**	**Article 3** **Vuthiarpa et al. 2012**	**Article 4** **Wong et al. 2012**	**Article 5 Mi** **Kyung, S. 2012**	**Article 6** **Wijnhoven et al. 2014**	**Article 7** **Garmy et al. 2014.**
Type of prevention program	Universal school-based prevention program	Universal school-based primary prevention program	Indicated school-based CBT program	Universal school-based program for preventing depression	Indicated school-based intervention program	Indicated depression prevention program	Universal school-based prevention program
Name of program	The primary prevention program LISA	LARS & LISA	Cognitive behavioral therapy program	The Little Prince is Depressed (LPD)	School-based intervention program	Op Volle Kracht (OPK)	Depression in Swedish Adolescents or DISA
Cognitive components: Response accessing.	✓	✓					
Mental representation	✓	✓	✓		✓		
Response evaluation and selection	✓				✓	✓	

Table 3.3 Collective table of school-based CBT program for adolescents (Cont.)

Components	**Article 1** **Possel et al. 2005**	**Article 2** **Possel et al. 2011**	**Article 3** **Vuthiarpa et al. 2012**	**Article 4** **Wong et al. 2012**	**Article 5 Mi** **Kyung, S. 2012**	**Article 6** **Wijnhoven et al. 2014**	**Article 7** **Garmy et al. 2014.**
Identify automatic thoughts	✓	✓	✓	✓	✓	✓	✓
Positive coping			✓	✓	✓		✓
Depression knowledge				✓	✓		
Behavioral and Social components Response accessing	✓	✓					
Response evaluation and selection	✓	✓					
Enactment	✓	✓					
Homework	✓	✓	✓			✓	
Problem-solving skill			✓	✓		✓	✓
Communication and interpersonal skill			✓	✓			✓

Table 3.3 Collective table of school-based CBT program for adolescents (Cont.)

Components	**Article 1** **Possel et al. 2005**	**Article 2** **Possel et al. 2011**	**Article 3** **Vuthiarpa et al. 2012**	**Article 4** **Wong et al. 2012**	**Article 5 Mi** **Kyung, S. 2012**	**Article 6** **Wijnhoven et al. 2014**	**Article 7** **Garmy et al. 2014.**
Anger management				✓			
Pleasant activities			✓				
Social skills			✓		✓		✓
assertiveness			✓				
Social competence			✓				
Prevention of depression					✓		
Setting	School.	School class room	School context	School class hour and classroom.	School.	School class room	School conference room
Length of sessions	90 minutes.	90 minutes	50 minutes	45 – 60 minutes	60 minutes	50 minutes	90 minutes
Duration	10 weekly sessions.	10 weekly sessions	16 lessons for 5 months	12 sessions	10 weekly sessions.	16 lessons	10 weekly lesson
Type of intervention	Groups with 8-24 students.	Group intervention	Group sessions with 12-15 students.	Group intervention	Group intervention	Group intervention	Group intervention and 10-18 students

Table 3.3 Collective table of school-based CBT program for adolescents (Cont.)

Components	Article 1 Possel et al. 2005	Article 2 Possel et al. 2011	Article 3 Vuthiarpa et al. 2012	Article 4 Wong et al. 2012	Article 5 Mi Kyung, S. 2012	Article 6 Wijnhoven et al. 2014	Article 7 Garmy et al. 2014.
Therapist	Trainer and co-trainer, who are qualified as psychologist with master's degrees.	Psychologist at the master's degree level or graduate students experienced in working with adolescents.	The primary investigator and research assistants were registered nurses with master's degrees.	Research social workers trained and supervised by experienced psychologists.	Clinical practitioner of Nursing Department and 10 years' experience.	One experienced group therapist conducted the sessions.	School nurse, school social workers and teachers.
Method of group activities	Lecture, video recording.	.	Role-playing, discussions on related topics, learning tasks and homework.	Multimedia materials, teacher handbook and student workbook.	Lectures, case method, small group discussions and poster presentation with counseling	Lectures: each session included homework for the next session.	

3.4 Recommendations

The recommendations were derived from the samples of strongly supported evidence-based practice yielded by the search through analysis and synthesis of the cognitive behavior therapy for reducing depressive symptoms among adolescents regarding, the characteristics of the adolescents, the characteristics of the therapists, the intervention methods and design and outcome measurement. The samples of evidence-based practice consisted of three randomized controlled trials and four quasi-experimental studies. All of the studies focused on the effectiveness of school-based cognitive behavior therapy to reduce and prevent depressive symptoms among adolescents.

According to the analysis and synthesis of the seven samples of evidence-based practice, there were two cognitive behavior therapy models for prevention of depressive symptoms. The first model was a universal school-based program for preventing depression and the second model was an indicated school-based program for preventing depression. The recommendations for using each of the models are as follows:

1. Universal school-based program for preventing depression

This type of intervention is to be applied for adolescents in students who have no symptoms of depression and no psychological problems (Possel et al., 2005; Possel, Adelson and Hautzinger, 2011; Wong et al., 2012; Gramy et al., 2014). All of the students can participate and be screened for depressive symptoms to avoid the resulting stigma of such screening.

1.1 Participant Qualifications

1.1.1 The participants should be male and female 8th grade students in secondary school (Possel et al., 2005: Level II; Possel et al., 2011: Level II; Wong et al., 2012: Level III; Gramy et al., 2014: Level III).

1.1.2 The estimated ages should be from 13 to 16 years in adolescents with depressive symptoms (Possel et al., 2005: Level II; Possel et al., 2011: Level II; Wong et al., 2012: Level III; Gramy et al., 2014: Level III).

1.2 Therapist Qualifications: The universal intervention program was conducted and delivered by a trainer and co-trainer who were psychologists with Master's degrees (Possel et al., 2005: Level II; Possel et al., 2011:

Level II) or social workers trained by experienced psychologists (Wong et al., 2012: Level III) with school nurses, social workers and teachers (Gramy et al., 2014: Level III).

1.3 Setting: All of the sessions in the depression prevention program can be implemented in school classrooms (Possel et al., 2005: Level II; Possel et al., 2011: Level II; Wong et al., 2012: Level III) and conference rooms (Gramy et al., 2014: Level III), during usual school class periods (Possel et al., 2005: Level II; Possel et al., 2011: Level II; Wong et al., 2012: Level III) and in lieu of regular physical education class (Gramy et al., 2014: Level III).

1.4 Duration and number of sessions: Every session is designed for durations from 45-60 minutes (Wong et al., 2012: Level III) to 90 minutes (Possel et al., 2005: Level II; Possel et al., 2011: Level II; Gramy et al., 2014: Level III) and a total of approximately ten sessions (Possel et al., 2005: Level II; Possel et al., 2011: Level II; Gramy et al., 2014: Level III) to 12 sessions (Wong et al., 2012: Level III). Every session can be conducted once a week (Possel et al., 2005: Level II; Possel et al., 2011: Level II; Wong et al., 2012: Level III; Gramy et al., 2014: Level III).

1.5 Therapy methods: The intervention program sessions should be administered in groups of adolescents (Possel et al., 2005: Level II; Possel et :al., 2011: Level II; Wong et al., 2012: Level III; Gramy et al., 2014: Level III) and separated by gender (Possel et al., 2005: Level II;Gramy et al., 2014; Possel et al., 2011: Level II. The programs with manuals for conducting school-based universal primary preventions included LARS & LISA - Lust an Realistischer Sicht & Leichtigkeit Im Sozialen Alltag (Possel et al., 2011: Level II) LPD - The Little Prince is Depressed (Wong et al., 2012: Level III) and DISA – Depression in Swedish Adolescents (Gramy et al., 2014: Level III).

The LAR & LISA was based on the social information processing model of social component as described by Dodge (1993). The model consists of two components cognitive and social components based on five stages of information processing including the following: 1) encoding; 2) mental representation; 3) response accessing; 4) response evaluation and selection and 5) enactment.

The cognitive component of the program is related to the stages of encoding and mental representation, response evaluation and selection. The program is designed to reduce underlying negative cognitions and increase more accurate appraisals. Therapists try to alter adolescents' information processing through the development of more accurate beliefs resulting in less negative emotions. Regarding response evaluation and selection, the therapist teaches the students to re-evaluate their appraisals of the consequences of their behaviors as they learn to evaluate the acceptability and results of their actions (Possel et al., 2005: Level II; Possel et al., 2011: Level II)..

The social component of the program is related to the stages of response accessing, response evaluation and selection and enactment. Adolescents are trained new or unfamiliar functional behaviors such as assertiveness and building social competence through role-plays leading to increased adolescent recognition of the feasibility of more adaptive behaviors. Training encourages the adolescents' favorable evaluations of their behaviors both inside and outside the context of the program. By learning increasingly adaptive social behaviors, adolescent develop, expand and improve their use of social networks (Possel et al., 2005: Level II; Possel et al., 2011: Level II).

In addition, LARS & LISA include a motivation section (one session) to give adolescents an opportunity to consider their goals and how they plan to achieve those goals.

The other two programs are LPD and DISA which were tested with quasi – experimental pilot study and also have two components, namely, a cognitive component and a behavior component. The programs focused on training in cognitive-restructuring skills, techniques for modifying irrational and negative self-statements and ideas to reduce the risk of developing depressive symptoms (Gramy et al., 2014: Level III).

Regarding the cognitive component, the sessions included coping with stress and cognitive restructuring, links between thoughts, feelings and actions; identification of activating events and situations; the power of positive thinking and how to increase the thinking; changing positive thoughts to positive thoughts, identification of irrational thoughts, discovering erroneous thought patterns,

negative ways of thinking and ways to cope with stressful events/situations (Gramy et al., 2014: Level III & Wong et al., 2012: Level III).

In the behavior component, the practice sessions enhance self-management skills, including communication training, problem-solving strategies and exercise to strengthen social skills or interpersonal skills and social networks (Gramy et al., 2014: Level III; Wong et al., 2012: Level III). In addition, the sessions of conflict resolution, anger management and positive coping have been added (Wong et al., 2012: Level III).

1.6 Outcome evaluation: The primary outcome is to be measured for depressive symptoms by the Central Epidemiological Studies – Depression CES-D (Possel et al., 2005: Level II; Gramy et al., 2014: Level II), the Self-Report Questionnaire – Depression SBB-DES (Possel et al., 2011: Level II) and the Depression Anxiety Stress Scale DASS21 (Wong et al., 2012).

1.7 Outcome Monitoring: The outcomes should be measured at pre-intervention, post-intervention (Possel et al., 2005: Level II; Possel et al., 2011: Level II; Wong et al., 2012; Gramy et al., 2014), 3-month (Possel et al., 2005: Level II) and 12-month follow-ups after completing the intervention (Possel et al., 2011: Level II; Gramy et al., 2014).

2. Indicated school-based program for preventing depression

The indicated cognitive behavioral therapy program is to be applied on adolescent school students with elevated depressive symptoms. The indicated prevention program includes adolescents with no psychological problems or no psychiatric drugs prescribed (Vuthiarpa et al., 2012: Level III; Mi Kyung, 2012: Level III; Wijnhoven et al., 2014: Level II).

2.1 Participant Qualifications

2.2.1 The participants should be female (Mi kyung, 2012: Level III; Wijnhoven et al., 2014: Level II) and 8th grade (Mi kyung, 2012: Level III) students of secondary schools.

2.2.2 The student participants in the study should range in age from 14 to 17 (Vuthiarpa et al., 2012: Level III; Mi kyung, 2012: Level III; Wijnhoven et al., 2014: Level II) with mild to moderate (Vuthiarpa et al., 2012:

Level III ; Wijnhoven et al., 2014: Level II) and mild to severe level depressive symptoms.

2.2.3) Participants who have a history of severe depression (Vuthiarpa et al., 2012: Level III) and suicidal ideation (Wijnhoven et al., 2014: Level II) should be excluded.

2.2 Therapist Qualifications: The indicated school-based prevention program of depression can be administered by a registered nurse with a master's degree (Vuthiarpa et al., 2012: Level III), a nursing clinical practitioner with 10 years' experience (Mi kyung, 2012: Level III), school nurses, school social workers and teachers (Wijnhoven et al., 2014: Level II).

2.3 Setting: For indicated school-based prevention program, school classrooms are preferred for holding the sessions (Vuthiarpa et al., 2012: Level III; Mi Kyung, 2012: Level III ; Wijnhoven et al., 2014: Level II) during school hours (Vuthiarpa et al., 2012: Level III; Mi Kyung, 2012: Level III) and after school (Wijnhoven et al., 2014: Level III).

2.4 Duration and number of sessions: The durations of the prevention programs are constructed for 50-60 minutes and once a week (Vuthiarpa et al., 2012: Level III; Mi Kyung, 2012: Level III; Wijnhoven et al., 2014: Level II) for 10 (Mi Kyung, 2012: Level III) to 16 lessons (Vuthiarpa et al., 2012: Level III ; Wijnhoven et al., 2014: Level II).

2.5 Therapy methods: The group method is favorable for effective interventions among middle adolescents. Therapists can provide the knowledge about depression and teach adolescent to change their negative automatic thoughts through exploring life experiences. After that, they are able to link relationships between thinking, feeling and behavior. This influences the adolescents' understanding about positive thinking. Positive thinking feels better, happier and more active for the adolescents in their daily activities and lives. In the sessions, therapist and students agree to make routines to do homework after the sessions and the therapist checks on the homework at next session. The indicating school-based programs reviewed in this study included the School-Based CBT Program (Vuthiarpa et al., 2012: Level III), Op Volle Kracht (Wijnhoven et al., 2014: Level II) and the

School-based Intervention Program for a Middle School Girls with Depression (Mi Kyung, 2012: Level III).

The intervention programs were designed based on the original cognitive behavior therapy to reduce depressive symptoms, decrease negative automatic thoughts and enhance the social and adaptive functioning of the adolescents. During the construct program, the adolescents should consider their depression, culture, lifestyles and learning patterns. At the first stage, the CBT program reduces depressive symptoms to within a normal range and adolescents learn effective communication, improved problem-solving skills and assertive training which helped them to accomplish their own behavioral tasks and gain new skills (Vuthiarpa et al., 2012: Level III). At the second stage, the interventions focused on changing negative automatic thought by understanding emotions, thought and situations. After changing thinking and automatic thought, the adolescents will feel better, happier and more active. At the last stage, the adolescents learn about relaxation techniques and regulation of their emotions to help improve communication skills and develop problem-solving skills (Vuthiarpa et al., 2012: Level III: Wijnhoven et al., 2014: Level II).

The school-based intervention program for middle school girls with depression content included knowledge about depression consists of the etiology, early signs and symptoms, diagnosis and treatment. The therapy guides adolescents who have depressive symptoms in self-evaluation to enable the participants to explore and evaluate life experience and insight. The therapy consists of coping strategies for the prevention of depression and suicide to strengthen the adolescents in performing activities. The researcher evaluated the last week of lesions to determine whether or not the participants had learned and shared experiences (Mi Kyung, 2012: Level III).

2.6 Outcome evaluation: The primary outcome for measuring depressive symptoms among adolescents are the Center of Epidemiological Studies – Depression (Vuthiarpa et al., 2012: Level III; Wijnhoven et al., 2014: Level II), the Reynolds Adolescent Depression Scale RAD 2nd edition ((Mi kyung, 2012: Level III) and the Children Depression Inventory CDI (Wijnhoven et al., 2014: Level II).

2.7 Outcome monitoring: Outcome monitoring was designed to be weekly over a period of 4-6 weeks for the mid-point of intervention, immediate

completion of the session, after 6 months and at the 1-year follow-up by selecting instruments to measure the level of depressive symptoms.

All of the above extracted data are synthesized from cognitive behavior therapy (CBT) to reduce depressive symptoms among adolescents. All of the seven articles of evidence-based practice were found by considering the PICO framework. Four were randomized controlled trials and three were quasi-experimental studies. The samples of evidence-based practice showed the effectiveness of school-based group CBT as the experiment groups of adolescents had significantly lower scores for depressive symptoms than the control groups. According to the analysis and synthesis of the samples of evidence-based practice, the author recommends two models of therapy for use in schools for the prevention of depressive disorders. These are the universal school-based primary intervention program and the indicated school-based cognitive therapy program. The universal school-based primary intervention program can be applied for adolescents who have no symptoms of depression and no psychological problems and the indicated school-based cognitive therapy program can be applied for adolescents who have elevated depressive symptoms.

CHAPTER IV
CONCLUSION AND SUGGESTIONS

4.1 Conclusion

The study was initiated to analyze and synthesize samples of evidence-based practice from cognitive behavior therapy that was effective in reducing depressive symptoms among adolescents. Adolescent depression is a significant public health problem from a global perspective in both developed and developing countries. A major portion of the world's population is occupied by children and adolescents. Furthermore, the greater part of the adolescent population is living in developing countries. Data from different studies have revealed that secondary school adolescents are experiencing depressive symptoms. Moreover, females are twice as vulnerable in comparison to male adolescents. In Bangladesh, 45% of the children and adolescents make up the total population in the country. Although no national survey or research study has been conducted to detect depressive symptoms among adolescents, the adolescents of this country appear to be similarly affected by depressive symptoms. Mental health services are very limited for the population of the country. Very few psychiatrists are engaged in providing services which is insufficient for the huge population. To make matters worse, no psychiatric nurses are available in the country. Depressive symptoms impair the normal lives of the adolescents in terms of daily activities, educational performance, loss of interest in school and withdrawal from social relationships. The aforementioned can also lead to suicidal plans, thoughts and attempts with the eventual outcome of successful suicide. Adolescence is a transitional period where adolescents want to live independently, but feel insecure, have high levels of stress, negative thinking, inadequate ability to adapt to new situations and fewer effective problem-solving skills. Different factors are responsible for these conditions among adolescents such as demographic factors, parental factors, stressful life events, school environments, peer factors and intrapersonal factors. Depressive

symptoms can be reduced and prevented among adolescents by considering the predicting factors among adolescents.

Adolescents with depressive symptoms are more vulnerable to depressive disorder in adulthood. However, this disorder is preventable if steps are taken toward appropriate screening with application of suitable therapy for adolescents with the aforementioned symptoms. Different types of therapy are used for secondary school students with or without depressive symptoms such as physical activity, interpersonal psychotherapy, interpersonal psychotherapy-A, and cognitive behavioral therapy (CBT). Cognitive behavioral therapy is significantly effective for adolescents who are affected by depressive symptoms (REF). Depressive symptoms can develop among adolescents as a result of any event or situation by the cognitive processing information system. Situations or events influence the automatic thinking of people either positively or negatively. Then automatic thought interprets the events or situations negatively and the persons' thoughts and feelings influence behavior. CBT helps the individual to reconstruct thinking processes, and guides changes in abnormal behavior. In particular, CBT plays an active role in negative automatic thought, social information processing, problem-solving skills and low self-esteem, all of which contribute to the development of depressive symptoms. Therefore, the present study aims to analyze and summarize the evidence in order to make recommendations and suggestions.

According to the objectives of the study, the author searched for samples of evidence-based practice from the electronic database of Mahidol University and discovered relevant articles with the PICO framework. The PICO format helped to discover suitable samples of evidence-based practice aimed at reducing adolescent depressive symptoms through cognitive behavior therapy in a school setting. The author selected samples of evidence-based practice by setting inclusion and exclusion criteria covering areas such as language, publication year, setting of the intervention and depression level. For appraisal of the samples of evidence-based practice, validity, reliability and applicability were strongly considered in the selecting articles and stating the strength of levels of the articles. Finally, the author found and selected seven samples of evidence-based practice where three articles were randomized controlled trials and four articles were quasi-experimental studies.

Based on the analysis and synthesis of the seven samples of evidence-based practice, the following two CBT models are recommended for reducing depressive symptoms among adolescents: (1) The universal school-based programs for preventing depression is appropriate for adolescents who have no depressive symptoms and are 8th grade students of secondary schools. (2) The indicated school-based program for preventing depression is appropriate for adolescents who have elevated depressive symptoms from a mild to moderate level. The outcome of the prevention program should be evaluated as soon as the intervention has ended by using CDI or CES-D. Outcome should also be measured periodically every month or every six months and 12 months, respectively.

4.2 Suggestions

According to the samples of evidence-based practice in this study, is suggested that cognitive behavior therapy is capable of reducing depressive symptoms among adolescents in school settings. The evidence-based study of cognitive behavioral therapy indicates that the following suggestions would be supportive in nursing practice as well as among mental health professionals:

4.2.1 Implications for practice

1) A cognitive behavior therapy manual or practice guideline should be developed for adolescents with depressive symptoms.

2) In order to reduce and prevent depressive symptoms, school-based universal primary prevention cognitive behavior therapy (CBT) programs should be included for adolescents where every student has a chance to participate to avoid the stigma of depression and mental problems.

3) First priority, the author will implement universal school-based cognitive behavioral therapy program, if screen and find children with mild to moderate depressive symptoms, refer them to the psychiatric clinic.

4) National survey or screening should be arranged to determine actual figures and the factors of depressive symptoms among adolescents as well as secondary school students before implementing the intervention program

5) During the development of the practice guideline for cognitive behavior therapy, consideration should be given to the setting of the country context in Bangladesh, especially concerning methods and available resources, in order to facilitate implementation of the universal prevention program.

6) Multidisciplinary teams should be organized to implement universal school-based cognitive behavior therapy (CBT) programs in school settings with team members including nurses, psychologists, psychiatrists, physicians, social workers and occupational therapists.

7) Training on CBT program should be arranged by the authorities with the selection of psychiatric nurses who have academic qualifications under graduation to implement and monitor programs for reducing depressive symptoms.

8) The outcomes of the cognitive behavior therapy program for reducing depressive symptoms among adolescents should be published for dissemination among related organizations and agencies through publication in academic journals, internet websites, conferences and seminars to exchange knowledge and continuity of nursing development.

4.2.2 Implication for nursing research

1) A pilot study should be conducted to evaluate the acceptance and feasibility of implementing the cognitive behavior therapy program to reduce depressive symptoms among adolescents in real practice.

2) A clinical research study should be organized to evaluate effectiveness and cost-effectiveness as well as health expenditure of cognitive behavioral therapy program to reduce depressive symptoms among adolescents.

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