# FACTORS INFLUENCING CO-OCCURRENCE OF DISRUPTIVE BEHAVIOR AND DEPRESSION AMONG THAI ADOLESCENTS

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ปัจจัยที่มีอิทธิพลต่อการมีปัญหาพฤติกรรมร่วมกับภาวะซึมเศร้าในวัยรุ่นไทย

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วัชรินทร์ วุฒิรณฤทธิ์ : ปัจจัยที่มีอิทธิพลต่อการมีปัญหาพฤติกรรมร่วมกับภาวะซึมเศร้าในวัยรุ่นไทย. (FACTORS INFLUENCING CO-OCCURRENCE OF DISRUPTIVE BEHAVIOR AND DEPRESSION AMONG THAI ADOLESCENTS) อ.ที่ปรึกษาวิทยานิพนธ์หลัก: รศ. ดร. จินตนา ยูนิพันธุ์, อ.ที่ปรึกษาวิทยานิพนธ์ร่วม: รศ. ดร. วราภรณ์ ชัยวัฒน์, 255, หน้า.

การศึกษาภาคตัดขวางเชิงบรรยายนี้ มีวัตถุประสงค์ เพื่อศึกษาความสัมพันธ์ระหว่างการมีปัญหาพฤติกรรมและภาวะซึมเศร้าในวัยรุ่นไทย และศึกษาปัจจัยที่มีอิทธิพลต่อการมีปัญหาพฤติกรรมร่วมกับภาวะซึมเศร้าในวัยรุ่นไทย กลุ่มตัวอย่างคือผู้ป่วยวัยรุ่นที่มีปัญหาพฤติกรรมและภาวะ ซึมเศร้า จำนวน 123 คน ที่มารับบริการที่หน่วยบริการจิตเวชเด็กและวัยรุ่น แผนกผู้ป่วยนอก โรงพยาบาล/สถาบันบริการสุขภาพของภาครัฐ 7 แห่ง ของประเทศไทย เก็บรวบรวมข้อมูลโดยใช้แบบสอบถาม 2 ชุด ชุดที่ 1 เป็นแบบสอบถามสำหรับวัยรุ่นเป็นผู้ตอบ ประกอบด้วยแบบสอบถามข้อมูลทั่วไป แบบประเมินภาวะซึมเศร้า แบบสอบถามความสามารถทางสังคมของวัยรุ่น แบบสอบถามสภาพแวดล้อมในครอบครัวด้านความสัมพันธ์ และแบบสอบถามการพัวพันกับเพื่อนที่มีพฤติกรรมเบี่ยงเบน ส่วนชุดที่ 2 แบบสอบถามสำหรับผู้ปกครองเป็นผู้ตอบ ประกอบด้วย แบบสอบถามข้อมูลทั่วไป แบบสอบถามประวัติการมีปัญหาพฤติกรรมดื้อต่อต้านในวัยเด็กของวัยรุ่นที่เป็นผู้เข้าร่วมการวิจัย แบบสอบถามเพื่อประเมินปัญหาพฤติกรรมของวัยรุ่นที่เป็นผู้เข้าร่วมการวิจัย และแบบสอบถามพฤติกรรมของผู้ปกครอง วิเคราะห์ข้อมูลโดยใช้สถิติพรรณนา วิเคราะห์ความสัมพันธ์ระหว่างการมีปัญหาพฤติกรรมและภาวะซึมเศร้าด้วยสัมประสิทธิ์สหสัมพันธ์ของเพียร์สัน และทดสอบเส้นทางอิทธิพลของสมมติฐานการวิจัยโดยใช้โปรแกรมลิสเรล 8.72

ผลการวิจัยพบว่า การมีปัญหาพฤติกรรมไม่มีความสัมพันธ์กับภาวะซึมเศร้าในวัยรุ่นไทย ($r = .13$, $p > .05$) และโมเดลสมมติฐาน มีความสอดคล้องกลมกลืนกับข้อมูลเชิงประจักษ์ และสามารถอธิบายความผันแปรของการมีปัญหาพฤติกรรมร่วมกับภาวะซึมเศร้าได้ ร้อยละ 18 และร้อยละ 13 ตามลำดับ (chi-square= 5.08, df= 6, p= 0.533, chi-square/df= 0.85, RMSEA= 0.000, GFI = 0.99, AGFI = 0.95) สภาพแวดล้อมในครอบครัวด้านความสัมพันธ์และความสามารถทางสังคมมีอิทธิพลต่อภาวะซึมเศร้า ($\beta = -.25$, $p<.01$, $\beta = -.21$, $p<.05$ ตามลำดับ) การมีพฤติกรรมดื้อต่อต้านในวัยเด็กมีอิทธิพลต่อการมีปัญหาพฤติกรรมในวัยรุ่น ($\beta = .38$, $p<.001$) ส่วนพฤติกรรมของผู้ปกครองและการพัวพันกับเพื่อนที่มีพฤติกรรมเบี่ยงเบนไม่มีอิทธิพลต่อการมีปัญหาพฤติกรรมและภาวะซึมเศร้าในวัยรุ่น

จากการศึกษาในครั้งนี้ไม่พบปัจจัยที่มีอิทธิพลต่อการมีปัญหาพฤติกรรมร่วมกับภาวะซึมเศร้า

สาขาวิชา พยาบาลศาสตร์ ลายมือชื่อนิสิต .....

ปีการศึกษา 2556 ลายมือชื่อ อ.ที่ปรึกษาวิทยานิพนธ์หลัก .....

ลายมือชื่อ อ.ที่ปรึกษาวิทยานิพนธ์ร่วม .....

# # 5177974536 : MAJOR NURSING SCIENCE
KEYWORDS: ADOLESCENTS / DEPRESSION / DISRUPTIVE BEHAVIOR / CO-OCCURRENCE

VATCHARIN WUTHIRONARITH: FACTORS INFLUENCING CO-OCCURRENCE OF DISRUPTIVE BEHAVIOR AND DEPRESSION AMONG THAI ADOLESCENTS. ADVISOR: ASSOC. PROF. JINTANA YUNIBHAND, Ph.D., CO-ADVISOR: ASSOC. PROF. WARAPORN CHAIYAWAT, D.N.S., 255 pp.

The purposes of this cross-sectional, descriptive correlation study were to examine the relationship between disruptive behaviors and to examine factors influencing co-occurrence of disruptive behavior and depression among Thai adolescents. One hundred twenty-three adolescents with disruptive behavior and depression, 13 – 17 years old were the participants of this study. The participants were recruited from Child and Adolescent Psychiatric Outpatient Departments/ Services of seven hospitals/institutes that simple random sampling from four regions of the Kingdom of Thailand. Adolescents completed a set of five questionnaires: the Demographic Questionnaire, the CES-D, the Social Competence Questionnaire, the FES-Relationship Dimension, and the Deviant Peer Affiliation Questionnaire. Whereas the parents completed a set of four questionnaires: the Demographic Questionnaire, the Childhood ODD Questionnaire, the CADBI, and the Parent's Report. Pearson's Product Moment correlation was used to test relationship between disruptive behavior and depression. A linear structural relationship (LISREL) 8.72 was used to test the hypothesized path model.

The results from Pearson's correlation analysis show that disruptive behavior did not has positive association with depression among Thai adolescents (r= .13,p> .05). In addition, the study findings revealed that the hypothesized model fit the empirical data and explained 18% and 13% of the variance of co-occurrence of disruptive behavior and depression (chi-square= 5.08, df= 6, p= 0.533, chi-square/df = 0.85, RMSEA= 0.000, GFI= 0.99, AGFI= 0.95). Family environment and social competence were the influential factors affecting depression ($\beta$ = -.25, $p<.01$, $\beta$ = -.21, $p<.05$). While, childhood ODD was the predictor of disruptive behavior ($\beta$ = .38, $p<.001$). However, parenting behavior and deviant peer affiliation did not associated with disruptive behavior and depression in adolescents.

This study did not find factors influencing co-occurrence of disruptive behavior and depression in Thai adolescents.

Field of Study: Nursing Science Student's Signature .....

Academic Year: 2013 Advisor's Signature .....

Co-Advisor's Signature .....

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# CHAPTER I

# INTRODUCTION

## Background and significance of the study

Mental health and psychiatric problems among adolescents are a highly prevalent and complex phenomena of considerable relevance to public health (Sirithongtawon et al., 2005). Among these mental health and psychiatric problems, disruptive behavior and depression are two of the most common mental health and psychiatric problems found in adolescents (Canino, Polanczyk, Bauermeister, Rohde, & Frick, 2010; Fernandez, Kramer, Fong, Doig, & Garralda, 2009; Hummer et al., 2011). The same situation was also found in Thailand (Charoensuk, 2007; Department of Mental Health, 2009; Trangkasombat, 2008).

Disruptive behavior has emerged as a gateway to psychiatric problems in adults (Keenan et al., 2011). In this study, disruptive behavior refers to adolescent's problem behavior, which is characterized by inattentiveness, hyperactivity, and impulsiveness (the symptoms of Attention Deficit Hyperactivity Disorder or ADHD), negative, defiant, and/or hostile behavior toward authority figures and sometimes peers to a degree that is not developmentally appropriate (the symptoms of Oppositional Defiant Disorder or ODD), aggression to people and/or animals, destruction of property, deceitfulness or theft and violations of rules (the symptoms of Conduct Disorder or CD). This definition of disruptive behavior is based on the

symptoms of ADHD, ODD, and CD found in the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders, (DSM-IV) (American Psychiatric Association, 1994). Whereas, depression refers to mental health problem which is characterized by having depressed mood, feelings of guilt and worthlessness, feelings of helplessness, and hopelessness, psychomotor retardation, loss of appetite and sleep disturbance (Radloff, 1977).

Prior studies have found that adolescents with disruptive behavior are more likely to suffer from depression than adolescents who do not have disruptive behavior. For example, adolescents with ADHD are 2.5 times more likely to suffer from depression than those without ADHD (Biederman et al., 2008) and adolescents with ODD are 17 times more likely to be depressed than those without ODD (Boylan, Vailancourt, Boyle, & Szatmari, 2007).

The presence of these psychiatric problems in the same person has been referred to as a co-occurrence of those problems (Boyd, Faltz, & Davis, 2008; Capaldi & Stoolmiller, 1999). In this study, the co-occurrence of disruptive behavior and depression refers to the presence of disruptive behavior and depression in an adolescent.

The co-occurrence of disruptive behavior and depression are recognized as a significant mental health and psychiatric problems among adolescents (Ben-Amos, 1992; Kutcher et al., 2004; Zahn-Waxler, Shirtcliff, & Marceau, 2008). The prevalence of the co-occurrence of disruptive behavior and depression in adolescents ranged

from 15% to 83% (Angold & Costello, 1993; Ezpeleta, Granero, & Doménech, 2005; Marmorstein & Iacono, 2003). Several studies on the co-occurrence of disruptive behavior and depression among adolescents have found that disruptive behavior is positively associated with depression. The correlation between disruptive behavior and depression has been reported in previous studies (Boylan, Georgiades, & Szatmari, 2010; Chen & Simon-Morton, 2009; Diamantopoulou, Verhulst, & Ende, 2010; Drabick, Gadow, & Sprafkin, 2006).

The co-occurrence of disruptive behavior and depression in adolescents has accentuated emotional symptoms and functional impairment. Prior research has found that the co-occurrence of these problems among adolescents was significantly associated with problems such as substance dependence, and suicidal tendencies (Cho et al., 2008; Goldston et al., 2009; Pardini, White, & Loeber, 2007). Several researchers have found evidence, which relates to the consequences of the co-occurrence of DB and depression among adolescents. For example, the co-occurrence of disruptive behavior and depression in adolescents has been a predictor of antisocial personality problems (Diamantopoulou et al., 2010) and severe/violent offenses (Copeland et al., 2007) in young adulthood.

In addition, the recovery rate from pure depression among adolescents was 80% recovered within a year, and more than 90% within two years (Dumas & Nilsen, 2003). Whereas, the recovery rate from the co-occurrence of disruptive behavior and depression was longer than pure depression. A prior study (Biederman et al., 2008)

has found that adolescents diagnosed with the co-occurrence of DB and depression needed a longer duration of treatment compared to control adolescents with depression, only (8.3± 6.3 years versus 5.3 ± 7.0 years, $t_{101}$= 2.0; $p$ = .05). The co-occurrence of DB and depression among adolescents might lead to more difficulty in treatment; Kolkijkovin and Techakasem (2002) found that having more than two psychiatric problems was one of the factors that correlated to a poor treatment outcome.

The cost of providing services to adolescents with the co-occurrence of disruptive behavior and depression was significantly higher than pure depression in adolescents (Knapp, McCrone, Fombonne, Beecham, & Wostear, 2002). This group used health care services, in-patient care, and criminal justice services more frequently and total costs were significantly higher.

Wolff and Ollendick (2006) highlight two important explanations from four possible explanations for the co-occurrence of disruptive behavior and depression in children and adolescents. Firstly, co-occurrence of disruptive behavior and depression exists because one problem causes or puts an individual at risk for the other. Regarding this possible explanation, the hypothesis that disruptive behavior is presumed to have a positive association with depression should be tested on Thai adolescents.

Secondly, the co-occurrence of disruptive behavior and depression may be explained by shared underlying causal or common risk factors. To investigate the

second explanation further, a hypothesized path model that includes factors, which influence both disruptive behavior and depression, would be useful to examine the relationships among those factors and disruptive behavior and depression in adolescents.

The review of the literature on co-occurrence of disruptive behavior and depression in adolescents confirms that there are important factors influencing disruptive behavior and depression: childhood ODD (Burke, Hipwell, & Loeber, 2010; Burke, Loeber, Lahey, & Rathouz, 2005; Diamantopoulou et al., 2010), parenting behavior (Chen & Simon-Morton, 2009; Drabick et al., 2006; Ezpeleta et al., 2005), family environment (Drabick et al., 2006; Ezpeleta et al., 2005; Sourander & Helstelä, 2005; Subbarao et al., 2008), deviant peer affiliation (Chen & Simon-Morton, 2009; Ezpeleta et al., 2005) and social competence (Burt, Obradovic´, Long, & Masten, 2008; Chen & Simon-Morton, 2009).

However, there was no research found, which investigated the relationship between disruptive behavior and depression, and the relationships among factors influencing both disruptive behavior and depression in Thai adolescents. Existing knowledge from other countries may be appropriate or inappropriate to apply in Thai context. It is essential for nurses to understand the effects of cultural influences on human behaviors. Every country may have some culture different from others. For example, parenting behaviors of Thai parents may have some similar or different from others. The results from this study on factors influencing on co-occurrence of

disruptive behavior and depression in Thai adolescents may be congruent or incongruent with previous studies findings in other countries.

Therefore, nursing research on the co-occurrence of disruptive behavior and depression among adolescents within a Thai context is needed to fill the gap in the existing body of knowledge. In this research, the relationship between disruptive behavior and depression is tested. In addition, a hypothesized model and a test model capable of explaining the influences of the selected factors on disruptive behavior and depression in Thai adolescents are developed. Path analysis is used to determine the direct and indirect effects of the relationships between a set of variables. A better understanding of the factors affecting disruptive behavior, depression, and their co-occurrence will enable the design of an optimal and effective nursing intervention program, which will focus on the prevention of future mental health problems in Thai adolescents. In addition, a better understanding of the factors, which contribute to the co-occurrence of disruptive behavior and depression among adolescents within a Thai context, will result in more appropriate and relevant nursing care.



**Research Questions**

1. Does disruptive behavior have positive association with depression among Thai adolescents?

2. Does the hypothesized path model include influencing variables: childhood ODD, parenting behavior, family environment, deviant peer affiliation, and social

competence explaining the co-occurrence of disruptive behavior and depression among Thai adolescents adequately fit the data?

**Purposes of the study**

1. To examine the relationship between disruptive behavior and depression among Thai adolescents

2. To examine factors influencing co-occurrence of disruptive behavior and depression among Thai adolescents

**Research hypotheses and rationales**

The hypothesized path model as shown in Figure 1 (page 19) was developed by selected important factors which, influence both disruptive behavior and depression from empirical knowledge. The research hypotheses and rationales are explained in the following eight statements:

1) Disruptive behavior is presumed to have a positive association with depression in adolescents.

*Rationale:* A psychiatric problem, which usually occurs in adolescence is disruptive behavior (Elder, Evan, & Nizette, 2009). In this study, disruptive behavior is defined as adolescent's problem behavior, which is characterized by inattentiveness, hyperactivity, and impulsiveness, negative, defiant, and/or hostile behavior towards authority figures and sometimes peers to a degree that is not developmentally appropriate and aggression towards people and/or animals, destruction of property,

deceitfulness or theft and violation of rules. These problem behavior in the adolescent could lead individual to develop another problem.

Based on literature, one possible explanations for the co-occurrence of disruptive behavior and depression in children and adolescents was co-occurrence of disruptive behavior and depression exists because one problem causes or puts an individual at risk for the other (Wolff & Ollendick, 2006). Regarding this possible explanation, three such types of association may occur between these problems: disruptive behavior preceding depression (Capaldi,1991;1992; Capaldi and Stoolmiller, 1999), depression preceding disruptive behavior (Kovacs et al., 1988) and disruptive behavior and depression may be reciprocally related so that they influence one another in a simultaneous fashion (Wolff & Ollendick, 2006). Regarding this possible explanation, disruptive behavior is presumed to have a positive association with depression in adolescents.

In addition, several studies on the co-occurrence of disruptive behavior and depression among adolescents (e.g. Boylan et al., 2010; Chen and Simons-Morton, 2009; Drabick et al., 2006; Diamantopoulou et al., 2010) and relevant research showing the correlation between disruptive behavior and depression were collated. For example, it was found that disruptive behavior and depression were positively correlated with $r = .30$ ($p < .01$) for male and female adolescents (Chen & Simon-Morton, 2009). Subbarao, Rhee, Young, Ehringer, Corley & Hewitt (2008) studied 570

monozygotic twin pairs, 592 dizygotic twin pairs, and 426 non-twin siblings, aged 12–18 years recruited from the Colorado Twin Registry. Forty percent of the participants were males. The results revealed that the correlation between depression and conduct disorder was .27 to .29. These findings support the scenario of disruptive behavior and depression co-occurring.

Above evidence revealed that disruptive behavior increase the risk for depression, depression in turn, leads to symptoms of disruptive behavior. As suggested by (Seligman & Ollendick, 1998), for any of these direct causal assumptions to be true, it must be shown that one problem temporally precedes the other and puts an adolescent at elevated risk for the development of the second problem. Some literature had explained that the progression of disruptive behavior into depression was related to the chain reaction of developmental failures experienced by adolescents with disruptive behavior. the direction from disruptive behavior (Capaldi, 1991; 1992; Capaldi and Stoolmiller, 1999; Patterson et al., 1992). The combination of adolescent's low competence and negative experiences with significant others may result in perceiving failures in adaptation that subsequently contributes to vulnerability and occur depression.

Based on above reasons and evidences, disruptive behavior is presumed to have a positive association with depression among adolescents.

2) Childhood ODD is presumed to have positive direct effect on disruptive behavior and depression in adolescents.

*Rationale:* Literature shows that oppositional defiant disorder (ODD) is the most common psychiatric childhood problem. Prevalence estimates ranged between 2 and 14 % in epidemiologic studies and 28 to 50% in clinical studies (Boylan et al., 2007). In a Thai study, Visanuyothin et al., (2013), used three-stage stratified sampling and estimates of the national ODD prevalence in Thai grade 1-5 primary school students. The results show that the prevalence of ODD was 3.1% (95% CI= 2.7-3.5), the highest, which was found in Bangkok was 5.5% (95% CI= 3.7-7.2). Therefore, childhood ODD within Thai context should be considered.

From reviewed articles, one of the important predictors of disruptive behavior and depression in adolescents is initial disruptive behavior during childhood (Burke & Loeber, 2010; Boylan et al., 2012; Fanti & Henrich, 2010). Among CD/ODD/ADHD, childhood ODD is most consistently found to be associated with DB and depression in adolescents (e.g., Burke et al, 2010). For example, Burke et al. (2010) studied a community sample of 2,451 female participants, followed up annually over a 5-year period, using parent, participant and teacher questionnaires. The results revealed that childhood ODD was a significant predictor of disruptive behavior (IRR = 1.10, SE = .02, $p < .001$, 95% CI 1.07 – 1.13) and depression (IRR = 1.05, SE = .01, $p < .001$, 95% CI 1.04 – 1.07). Burke et al. (2005) also studied 177 male children and adolescents, aged 7 to 12 years old at baseline assessment and reassessed them annually until

they reached the age of 18. The results revealed that childhood ODD was a predictor of disruptive behavior (IRR= 1.05, SE=.015, $p$ = .001, 95%CI 1.02 – 1.08) and depression (IRR= 1.05, SE = .02, $p$ = .008, 95%CI 1.01- 1.09) in adolescents.

One possible reason is the development of problem behavior found that generally, a sequential progression of one form of problem behavior occurs before the emergence of another. As adolescents progress through this sequence, they tend to maintain their prior problem behavior as behavior that is retained rather than replaced (Wenar & Kerig, 2006). Besides, childhood ODD may place children on a developmental pathway to negative interactions with parents and other negative social interactions that lead to emotional problems such as depression. Several longitudinal studies have found that childhood ODD was significantly associated with disruptive behavior and depression in adolescents (Burke et al., 2005; Burke et al., 2010; Diamantopoulou et al., 2010). The results from these longitudinal studies also reveal that childhood ODD is a significant predictor of disruptive behavior and depression in adolescents. Based on the above reasons and the empirical evidence, childhood ODD is presumed to have a positive direct effect on disruptive behavior and depression among adolescents.

3) Parenting behavior is presumed to have a negative direct effect on disruptive behavior and depression in adolescents.

*Rationale:* Research has consistently shown that parenting behavior can cause disruptive behavior and depression in adolescents (Drabick et al., 2006; Capaldi et al.,

1997; Ge et al., 1996). The parents are the significant persons of adolescents life. Parenting behavior could be influencing on adolescents' emotion and behaviors. Parenting some adolescents are demanding and time-intensive that could precede to inconsistent and coercive discipline. Adolescent may response some parenting behavior by more disruptive behavior. The negative feelings may consequence from their behavior that lead to vulnerability to depression (Patterson et al., 2000). The more the parents interact with adolescents in negative way, the more adolescents have risks to do disruptive behavior and vulnerabilities to depression. On the other hand, the more parents interact with the adolescents by positive parenting behavior, the less risk for adolescents to do disruptive behavior and vulnerabilities to depression.

Drabick et al. (2006) examine potential predictors of disruptive behavior and depression in a clinic-based sample with ADHD. Participants were recruited from a child psychiatric outpatient clinic (55%), a support group for parents of children with ADHD (39%), and directly from community and school (6%). They found that parenting behavior is one of factors influencing disruptive behavior and depression. In Thailand, there has been limited research done on parenting behavior. However, Rhucharoenpornpanich et al. (2010) found that parental monitoring and parental closeness were associated with problematical behavior. The findings show that

negative parenting behavior is associated with Thai adolescent mental health problems.

Based on evidences and above reasons, parenting behavior is presumed to have a negative direct effect on disruptive behavior and depression among adolescents.

4) Childhood ODD is presumed to have an indirect effect on disruptive behavior and depression via parenting behavior in adolescents.

*Rationale:* Related to hypothesis 2 was mentioned about relationship between childhood ODD and co-occurrence of disruptive behavior and depression. In addition, hypothesis 3 was rationale about relationship between parenting behavior and co-occurrence of disruptive behavior and depression in adolescents.

Developmental stages of each life may be useful for understanding this line of relationships from childhood ODD via parenting behavior to disruptive behavior and depression in adolescents. Difficulties such as childhood ODD that occurred earlier in an individual development may have particularly deleterious effects, diverting the child to a deviant pathway from which it is difficult to retrace their steps (Wenar & Kerig, 2006). Childhood ODD symptoms usually result in noncompliance and less response to parental requests. Parenting children who have oppositional defiant behavior is demanding and time-consuming, which can lead to the parent using less effective child rearing practices such as showing less respect for the child's

authority, control though guilt and detachment. Parents may feel it is difficult to manage their child's behavior. Children who grow up experiencing negative parent-child interactions are more likely to develop disruptive behavior in adolescence. Moreover, depression may be the result of those negative experiences (Boylan et al., 2012; Burke et al., 2005). Repeated negative interactions from parents may subsequently contribute to the adolescent's vulnerability, depression and the occurrence of disruptive behavior (Capaldi, 1991; 1992; Boylan et al., 2010).

In addition, Granic & Patterson (2006) refer to the emotional process in the negative dyadic interaction. Through conflicting interactions, parents and children both might be angry or distressed. Each may perceive the other as intentionally frustrating some goal. They may demonstrate negative behavior by trying to control the other. Repeated negative interpersonal experiences with parents may lead to depression, and continued disruptive behavior in adolescents.

Likewise, research has demonstrated that parenting behavior is significantly associated with disruptive behavior ($r = -.24$, $p < .01$ in male and $r = -.33$, $p < .01$ in female). and depression ($r = -.26$, $p < .01$ in male and $r = -.29$, $p < .01$ in female) in adolescents (Chen & Simon-Morton, 2009).

From above reasons and evidences supported, childhood ODD is presumed to have an indirect effect on disruptive behavior and depression among adolescents via parenting behavior.

5) Family environment is presumed to have negative direct effect on disruptive behavior and depression in adolescents.

*Rationale:* The family is a primary social system in which members across its life span must be nurtured and supported until adulthood (Fawcett, 1993). In this study, family environment is defined as the extent to which adolescent's perception on the quality of family relationships in his/her family. Adolescents have spent most of their lifetime with family members. The quality of the family environment, especially the quality of relationships among family members, is predictive of the family member's subsequent mental health (Drabick et al., 2006; Ezpeleta et al., 2005).

Adolescents who reported both disruptive behavior and depression experienced poorer relationships with their mothers, fathers and siblings and felt they were not supported at home (Ezpeleta et al., 2005). If family members are unable to keep conflict under control, there will be little positive involvement among the members (Patterson, 1982). Family members may avoid open expressiveness, interaction and not do things together. Repeated unsatisfactory and frustrating interactions with family members can lead to mental health and psychiatric problems including disruptive behavior and depression (Patterson et al., 1992).

Furthermore, research shows that the family environment is an important factor that influences disruptive behavior and depression (e.g. Drabick et al., 2006; Pressman et al., 2006; Sourander & Helstelä, 2005). Based on above evidence and

rationale, family environment is presumed to have a negative direct effect on disruptive behavior and depression among adolescents.

6) Deviant peer affiliation is presumed to have positive direct effect on disruptive behavior and depression in adolescents.

*Rationale:* Love and belonging are important needs for any human (Eby & Brown, 2005), including adolescents. From a developmental perspective, adolescents would like to be a member of at least one peer group. If good/normal friends do not accept an adolescent, he/she will develop a relationship with other peers such as deviant peers who accept him/her. His/her sense of belonging may be slightly fulfilled; however, the relationship may not fulfill his/her satisfaction and security needs. This is because deviant peers usually have problems and difficulty in their social environment. Deviant peer affiliation may lead to disruptive behavior and depression (Patterson et al., 1989). Regarding deviant behavior, others usually reject the adolescent and his/her deviant peers around them. In addition, while the adolescent is a member of a deviant peer group, the parents may be unsatisfied with the child's friends, which may result in the adolescent feeling anxious. In addition, acceptance from a deviant peer group may lead the adolescent to engage in repeated disruptive behavior.

Research has indicated that adolescents with disruptive behavior and depression have few good friends, engage in deviant peer association and parents are unsatisfied with the child's friends (Ezpeleta et al., 2005). Likewise, research has

demonstrated that deviant peer affiliation is significantly associated with disruptive behavior and depression in adolescents (Chen & Simon-Morton, 2009). Therefore, deviant peer affiliation is presumed to have a positive direct effect on disruptive behavior and depression among adolescents.

7) Social competence is presumed to have a negative direct effect on disruptive behavior and depression in adolescents.

*Rationale:* Adolescence is the transitional period from childhood to adulthood. This is a stage of life when an individual experiences many changes. Experiences of social rewards or rejection could produce a variety of emotional, cognitive, and behavioral responses that influence psychopathology (Burt et al., 2008).

Regarding theory of psychosocial development, Erikson (1963) studied the influence of social processes on the development of the personality. Achievement of the task results in a sense of confidence, emotional stability, and a view of the self as unique individual. In this study, social competence is defined as the perception of adolescent's ability to engage in well social relations with other people, particularly with respect to getting along with others and forming close relationships. If adolescent perceive they have high ability to engage in their selected social relations with some peers, they may develop self-confidence and emotional stability. On the other hand, adolescent who could not achieve the developmental tasks, they may results in a sense of self-consciousness, doubt, and confusion about individual's role in life. Commitment to relations with others may nonexistent or exist in superficial

and brief. Low social competence is often expressed by problems behaviors. Research has found that social competence is negatively associated with disruptive behavior and depression in adolescents (Burt et al., 2008; Chen & Simons-Morton, 2009). Therefore, social competence is presumed to have a negative direct effect on disruptive behavior and depression among adolescents.

8) Deviant peer affiliation is presumed to have an indirect effect on disruptive behavior and depression via social competence in adolescents.

*Rationale:* There is no doubt that peers play important, and sometimes critical, roles in adolescents' lives (Deater-Deckard, 2001; Rubin et al., 1998; Hay, Payne, & Chadwick, 2004). Successful social interaction depends on a mutual understanding of each participant's status. Deficits in social competence may interfere with successful peer relations (Hay et al., 2004). Conformity to peer pressure in adolescence can be positive and negative. Prior research has revealed that deviant peer affiliation is associated with a lack of social competence and more frequent occurrences of disruptive behavior and depression. Chen & Simons-Morton (2009) found that deviant peer affiliation was negatively associated with social competence in both genders. The same study found that social competence was negatively associated with disruptive behavior and depression.

Associating with deviant peers may lead the adolescent to view him/herself as similar to their peers. An important dimension of adolescent peer relations is the behavioral similarity between individuals and their peer affiliations (Kandel, 1978;

Poulin et al., 1997; Urberg et al., 1998). Deviant peer affiliation could be found at school and after school (Keisner et al., 2003). At school, the highly structured setting of the school may lead to social pressure for homogeneity among friends. If adolescents who are deviant peers wish to become friends with other good friends at the school, the teacher and some peers may not accept the relationships. The adolescent may perceive his/her own ability to engage in social relations with other people (or low social competence) negatively. The response to negative feedback may arise mental health problems including disruptive behavior and depression. Therefore, deviant peer affiliation is presumed to have an indirect effect on disruptive behavior and depression among adolescents via social competence.

The proposed relationships among the tested variables are depicted in Figure 1.

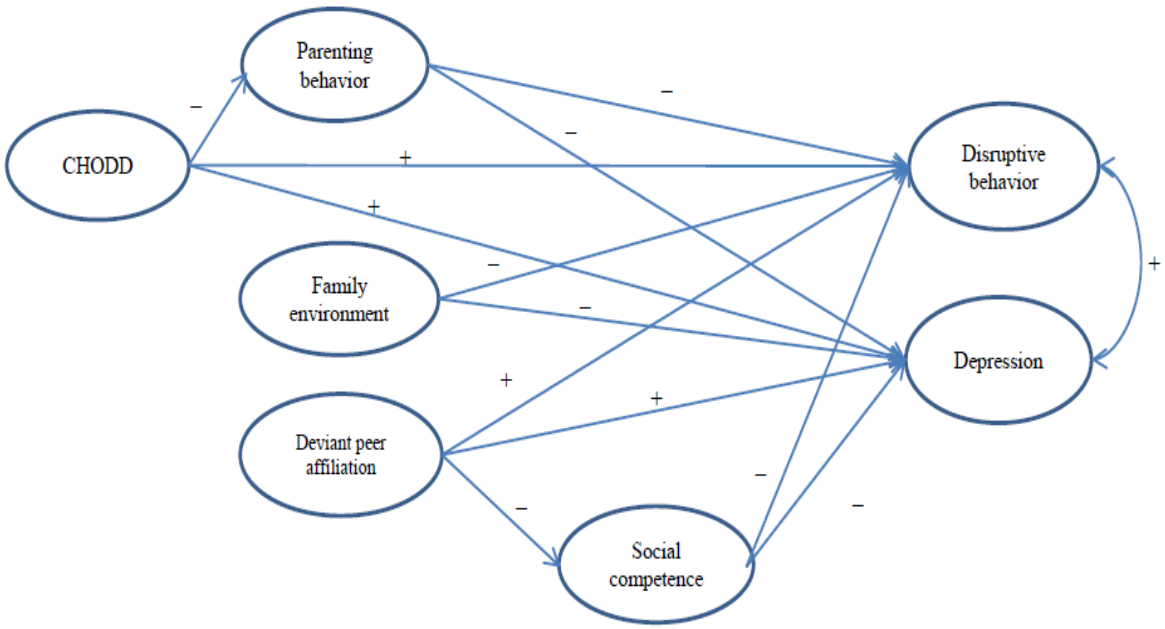



**Figure 1 Hypothesized path model of co-occurrence of disruptive**

**Scope of the study**

This study examine the relationships among selected influencing factors and co-occurrence of disruptive behavior and depression in Thai adolescents. Adolescents with disruptive behavior and depression, aged between 13 and 17 years old participated in this study. The participants were recruited from the Child and Adolescent Psychiatric Outpatient Departments/Services from seven hospitals/institutes from four regions of the Kingdom of Thailand.

**Definition of terms**

For the purposes of this study, the following terms are defined:

**Disruptive Behavior** is defined as adolescent's problem behavior, which is characterized by inattentiveness, hyperactivity, and impulsiveness (the symptoms of Attention Deficit Hyperactivity Disorder or ADHD), negative, defiant, and/or hostile behavior towards authority figures and sometimes peers to a degree that is not developmentally appropriate (the symptoms of Oppositional Defiant Disorder or ODD) and aggression towards people and/or animals, destruction of property, deceitfulness or theft and violation of rules (the symptoms of Conduct Disorder or CD). For this research, disruptive behavior is assessed using the Thai version of Child and Adolescent Disruptive Behavior Inventory (CADBI) (Burns, Desmul, Walsh, Silpakit, & Ussahawanitchakit, 2009; Burns et al., 2008; Burns et al., 2000). In this study, the summated score of each symptom's dimension is calculated and the summated

score of four symptom dimensions is used to represent the disruptive behavior. Higher scores indicate frequent occurrences of disruptive behavior.

**Depression** is defined as a mental health problem which is characterized by having depressed mood, feelings of guilt and worthlessness, feeling of helplessness, and hopelessness, psychomotor retardation, loss of appetite, and sleep disturbance of the adolescent. Depression was assessed by using the Center for Epidemiologic Studies-Depression Scale (CES-D) (Radloff, 1977) in Thai version that translated by Trangkasombat et al. (1997). The CES-D summated scores are used to represent depression. Scores equal or above 16 are indicative of clinically significant depression. Higher scores indicate frequent occurrences of depression.

**Co-occurrence of disruptive behavior and depression** refers to the presence of disruptive behavior and depression in an adolescent. For this research, the co-occurrence of disruptive behavior and depression is assessed by considering the adolescent's disruptive behavior and depression scores. Higher scores of CADBI and CES-D indicate frequent co-occurrences of disruptive behavior and depression in the adolescent.

**Childhood ODD** is defined as adolescent has a history of Oppositional Defiant Disorder (ODD) symptoms during childhood. The childhood period is considered 6 to 8 years. Childhood ODD was assessed by the Childhood ODD questionnaire that developed by the researcher. The parent was asked to rate adolescent's history of ODD symptoms during childhood.

**Parenting behavior** is defined as positive child rearing practice when the parent interacts with the adolescent. Parenting behavior consists of five behavioral dimensions: (i) respect for adolescent autonomy, (ii) consistency, (iii) child-centeredness, (iv) control through guilt and (v) detachment. Respect for autonomy is a positive interaction when the parent interacts with the adolescent by respecting the adolescent's needs and giving him/her a great deal of independence. Child-centeredness is a positive interaction when the parent interacts with the adolescent by showing concern and warmth to the adolescent. Consistency is a positive interaction when the parent interacts with the adolescent by showing commitment and consistency to rules and procedures. Control through guilt is a negative interaction when the parent interacts with the adolescent by trying to shape the adolescent's behavior by making the adolescent feel guilty. Detachment is a negative interaction when the parent interacts with the adolescent by withdrawing from the adolescent, especially when the parent is angered by the adolescent. For this research, parenting behavior is measured using the Thai version of the Parent's Report (PR) (Cohen, Dibble, & Grawe, 1977), translated into Thai by the researcher. The scores from the Control through Guilt and Detachment subscales are reversed before summation. The summated scores are used to represent parenting behavior. Higher scores indicate more positive parenting behavior.

**Family environment** is defined as the extent to which adolescent's perception on the quality of family relationships in his/her family. Family

environment consists of three dimensions: cohesion, expressiveness and conflict. Cohesion is the degree to which family members are helpful and supportive of each other. Expressiveness is the extent to which family members are encouraged to act openly and express their feelings directly. Conflict is the extent to which the open expression of anger and conflict among family members occurs. For this research, the family environment is assessed using the Family Environment Scale-Relationship dimensions (Moos, 2009), which were translated into Thai by the researcher. The conflict subscale score was reversed before summation using the Cohesion and Expressiveness subscale. The summated scale scores are used to represent the family environment. Higher scores indicate better quality relationships and a more positive support environment within the family.

**Deviant peer affiliation** is defined as an adolescent associating with close friends who have deviant/problem behavior**.** For this research, deviant peer affiliation is assessed using the Deviant Peer Affiliation Questionnaire that was developed by Barrera et al. (2001), translated into Thai by the researcher. The total score is calculated from average scores. Higher scores indicate that more of the adolescent's closest friends have problem behavior.

**Social competence** is defined as the perception of adolescent's ability to engage in well social relations with other people, particularly with respect to getting along with others and forming close relationships. For this research, social competence is assessed using the Social Competence Questionnaire (SCQ) that

consists of items based on the Social Competence subscale of the Perceived Competence Scale (Harter, 1982; 1985) translated into Thai by the researcher. The summated scores from all the items are used to represent social competence. Higher scores indicate higher social competence.

**Expected outcomes and benefits of the study**

1) Information about the relationships between disruptive behavior and depression will be helpful to enable better understanding of the co-occurrence of these problems within a Thai context.

2) The co-occurrence of DB and the depression path model will be useful to help understand the phenomena in Thai adolescents. The findings relating to the direct and indirect effects of factors influencing DB, depression, and the co-occurrence of DB and depression may be used as a guide for aspects that intervention programs could include.

3) The path model provides information regarding factors influencing co-occurrence of disruptive behavior and depression that nurses could consider the findings and use for developing an appropriate intervention programs.

4) The results of testing the relationships between the factors and the co-occurrence of DB and depression in adolescents will be useful for nurses and provide data that could influence the future development of policies, which can prevent the co-occurrence of disruptive behavior and depression in Thai adolescents.

# CHAPTER II
# LITERATURE REVIEW

This chapter presents an integrative review of the theoretical and empirical literature describing the concepts and interrelationships among factors influencing the co-occurrence of disruptive behavior and depression among adolescents. The review covers the following topics:

1. Adolescent Development
2. Disruptive behavior
   - 2.1 Definition of disruptive behavior
   - 2.2 Measurement of disruptive behavior
3. Depression
   - 3.1 Definition of depression
   - 3.2 Measurement of depression
4. The co-occurrence of disruptive behavior and depression among adolescents
   - 4.1 Definition of the co-occurrence of disruptive behavior and depression
   - 4.2 Co-occurrence of disruptive behavior and depression among adolescents

5. Factors influencing the co-occurrence of disruptive behavior and depression in adolescents

**1. Adolescent development**

Developmental theories identify behaviors associated with various stages through which individuals pass, thereby specifying what is appropriate or inappropriate at each developmental level. Developmental stages are identified by age. Behaviors can then be evaluated for age appropriateness. Ideally, an individual successfully fulfills all the tasks associated with one stage before moving on to the next stage at the appropriate age (Townsend, 2011).

Adolescence is the transitional period from childhood to adulthood. This is a stage of life when an individual experiences many changes. The World Health Organization (World Health Organization, 2011), defines adolescence as being between 10 and 20 years old. In this study, an adolescent refers to a person who is between 13 and 17 years old. This age range is the adolescence period as considered by interpersonal development, (Potts & Mandleco, 2002); Fortinash (Fortinash, Worret, & 2008) & Worret, 2008). In Thailand, adolescents aged between 13 and 17 years old usually study at high school (or Mattayomsuksa 1-3).

The environment may influence one's developmental pattern. For example, adolescents who are reared in a dysfunctional family system often have some problems in their development. When an individual become fixed in a level of

development, with age-inappropriate behaviors focused on fulfillment of those tasks, psychopathology may become evident (Townsand, 2011).

Regarding to theory of psychosocial development. Erikson (1963 cited in Townsand, 2011) studied the influence of social processes on the development of the personality. He described eight stages of the life cycle since infancy until elderly. Specific tasks associated with each stage must be completed for resolution of the developmental crisis and for emotional growth to occur. For this study, early stages of adolescence and the next one are helpful for more understanding adolescent development. The six stages of eight stages of development in Erikson's psychosocial theory are summarized as these follows.

| Age | Stage | Major developmental tasks |
|---|---|---|
| Infancy (birth-18 months) | Trust vs. Mistrust | To develop a basic trust in the mothering figure and be able to generalize it to others |
| Early childhood (18 months – 3 years) | Autonomy vs. Shame and Doubt | To gain some self-control and independence within the environment |
| Late childhood (3 - 6 years) | Initiative vs. Guilt | To develop a sense of purpose and the ability to initiate and direct own activities |
| School age (6 – 12 years) | Industry vs. Inferiority | To achieve a sense of self-confidence by learning, competing, performing successfully, and receiving recognition from significant others, peers, and acquaintances |
| Adolescence (12-20 years) | Identity vs. Role Confusion | To integrate the tasks mastered in the previous stages into a secure sense of self |
| Young adulthood (20-30 years) | Intimacy vs. Isolation | To form an intense, lasting relationship or a commitment to another person, cause, institution, or creative effort |

For adolescence stage, major developmental task is to integrate the tasks mastered in the previous stages into a secure sense of self. Achievement of the task results in a sense of confidence, emotional stability, and a view of the self as unique individual. Identity is achieved when adolescents received opportunities to experiences independence by making decisions that significance and influence their lives. Parents should be available to offer support when needed. Parents should gradually decrease control to the maturing adolescent in an effort to encourage the development of an independent sense of self. Commitments are made to a value system, and to relationships with members of both genders.

On the other hand, adolescent who could not achieve the developmental tasks, they may results in a sense of self-consciousness, doubt, and confusion about individual's role in life. Personal goals for life are absent. Commitment to relationships with others are nonexistent or exist in superficial and brief. A lack of self-confidence is often expressed by problems behaviors. There are some parenting behavior influencing this development tasks such as inconsistent discipline (Townsend, 2011).

**In summary.** Adolescence stage is one of the human developmental stages that have some specific or major developmental tasks to achieve different to other stages of life. Nonachievement developmental tasks may results in some adolescents' mental health problems and remain unresolved mental health problems in adolescence period of life and/or later.

**2. Disruptive behavior**

**2.1 Definition of disruptive behavior**

A psychiatric problem, which usually occurs in adolescence is Disruptive Behavior Disorder (Attention-Deficit/Hyperactivity Disorder, Conduct Disorder, Oppositional Defiant Disorder) (Elder et al., 2009). Based on the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders, (DSM-IV) (American Psychiatric Association, 1994), the classification and symptoms of each problem are described in this part (APA, 1994; Baker, 2008; O'Brien et al., 2008; Thomas, 2005).

*Oppositional defiant disorder (ODD)* is characterized by a recurrent pattern of negative, defiant and/or hostile behavior towards authority figures and sometimes peers to a degree that is not developmentally appropriate. The DSM-IV states that ODD is characterized by the frequent occurrence of at least four of the following, which persist for at least 6 months: 1) losing one's temper with adults, 2) arguing with adults, 3) actively defying or refusing to comply with the request or rules of adults, 4) deliberately doing things that will annoy others, 5) blaming others for their own mistakes or misbehavior, 6) being touchy or easily annoyed by others, 7) being angry and resentful and 9) being spiteful or vindictive.

*Attention deficit hyperactivity disorder (ADHD)* is characterized by inattentiveness, hyperactivity and impulsiveness. The essential feature of ADHD is a persistent pattern of inattention and/or hyperactivity and impulsivity more common than generally observed in adolescents of the same age. These individuals have

trouble sitting quietly. They are always running and often are impulsive, hurtful towards others, quick-tempered, disorganized, prone to accidents, unpopular, loners and poor students.

*Conduct Disorder (CD)* is characterized by repetitive and persistent patterns of behavior in which the rights of others or social rules are consistently violated. Symptoms are clustered in four areas. The DSM-IV lists the following 15 behaviors categorized into four areas. At least three must be overtly present in the previous year to meet the criteria, with one present in the last 6 months. Firstly, aggressiveness to people and animals: bullying, fighting, using a weapon, physical cruelty to people, physical cruelty to animals, stealing with confrontation of the victim and forced sexual activity. Secondly, property destruction: fire setting, and other destruction of property. Thirdly, deceptiveness and theft: breaking or entering, lying for personal gain and stealing without confronting the victim. Finally, serious rule violation: staying out at night, running away from home overnight at least twice and is often truant from school. Moreover, conduct disorder can be classified as mild, moderate or severe. Firstly, mild, the adolescent has some conduct problems that cause relatively minor harm to others. Secondly, moderate, the number of conduct problems increase as does the amount of harm to others. Finally, severe, the adolescent has many conduct problems that cause considerable harm to others.

Therefore, based on the DSM- IV, disruptive behavior can be defined as problem behavior, which is characterized by inattentiveness, hyperactivity and

impulsiveness (the symptoms of ADD), behavior in which the rights of others or social rules are consistently violated (the symptoms of CD) and a recurrent pattern of negative, defiant, and/or hostile behavior towards authority figures and sometimes peers to a degree that is not developmentally appropriate (the symptoms of ODD).

Several scholars have further defined disruptive behavior, in educational psychology; the definition of disruptive behavior includes any behavior that appears problematic, inappropriate, or disturbing to teachers (Galloway & Rogers, 1994). Cameron (1998) provides a further explanation of the different types of disruptive behavior found in classrooms using five different categories: aggressive behavior, physically disruptive behavior, socially disruptive behavior, authority-challenging behavior and self-disruptive behavior. Aggressive behavior is hitting, pulling hair, kicking, pushing and using abusive language. Physically disruptive behavior is smashing, damaging or defacing objects, throwing objects, or physically annoying other pupils. Socially disruptive behavior is screaming, running away or exhibiting temper tantrums. Authority-challenging behavior is refusing to carry out requests, exhibiting defiant verbal and non-verbal behavior and using pejorative language. Self-disruptive behavior is daydreaming and reading comics under the desk.

In this study, disruptive behavior refers to adolescent's problem behavior, which is characterized by inattentiveness, hyperactivity and impulsiveness (the symptoms of Attention Deficit Hyperactivity Disorder or ADHD), negative, defiant and/or hostile behavior towards authority figures and sometimes peers to a degree

that is not developmentally appropriate (the symptoms of Oppositional Defiant Disorder or ODD), aggression to people and/or animals, destruction of property, deceitfulness or theft and violations of rules (the symptoms of Conduct Disorder or CD). These definitions of problem behavior are based on the symptoms of ADHD, ODD and CD found in the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders, (DSM-IV, American Psychiatric Association or APA, 1994).

**2.2 Measurement of disruptive behavior**

Disruptive behavior has been be assessed using interviewing techniques such as the Structured Clinical Interview for DSM-IV (Spitzer, William, Gibbon, & First, 1990) and informant report tools such as the Strengths and Difficulties Questionnaire (Goodman, 2001). Details of instruments that have been used to assess disruptive behavior are described in this part.

Firstly, the Child and Adolescent Disruptive Behavior Inventory (CADBI) (Burns et al., 2009; Burns et al., 2008; Burns et al., 2000). The CADBI has been used to assess parental perception of the occurrence of the symptoms of conduct disorder (CD), oppositional defiant disorder (ODD) and attention deficit hyperactivity disorder (ADHD) based on the DSM-IV. The ADHD symptoms were separated into ADHD-IN and ADHD-H/I symptoms (9 items for each). The eight ODD items corresponded to the DSM-IV. The CD symptoms of stealing with and without confrontation were combined into a single symptom, steals. The sexual assault CD symptom was not included in the scale. The reliability, Cronbach's alpha ranged from .72 to .93 (Gomez, Burns,

Walsh, & Moura, 2003) and .89 to .92 in Thai children and adolescents (Burns et al., 2008; 2009). One-month test–retest reliabilities ranged from .84 to .92 (Burns et al., 2008). Burns and colleges translated the CADBI into Thai through forward translation and backward translation (reported in Shipp, Burns, and Desmul (2010)). In the Thai version of the CADBI (Burns et al., 2008; 2009), confirmatory factor analysis is tested and the invariance and convergent/discriminant validity of the scale provides additional support for the construct validity of the CADBI.

Secondly, the Strengths and Difficulties Questionnaire (SDQ, Goodman, 1994), Thai version (Lortrakul & Lortrakul, 2000). The Conduct Problems and Hyperactivity subscale has been used to assess disruptive behavior. There were 5 items/subscale. Items were rated using a 3-point scale (from 0 = not true to 2 = certainly true). There was evidence to support acceptable psychometric properties (Hawes & Dadds, 2004). Moderate to strong internal reliability was exhibited across all subscales. The SDQ total difficulty scores were associated with concurrent treatment status and scores over a 12-month period were stable (Mathai, Anderson, & Bourne, 2004). In addition, the level of agreement between SDQ generated diagnoses and the clinical team diagnoses was moderate to high, ranging from 0.39 to 0.56. Correlations between the SDQ and an independent clinician ranged from 0.26 to 0.43. All were statistically significant (Hawes & Dadds, 2004).

The Child Behavior Checklist (CBCL) (Achenbach, 1991) is another instrument, which has been used to assess problem behavior and competence. Problem behavior included internalizing and externalizing (e.g. aggression). Cronbach's alpha ranged from .59-.97 for behavioral problems/syndrome, test-retest .47 to .96, (Holmbeck et al., 2007; Leung, Kwong, & Ho, 2006). Convergence tested with Corner's parent and teacher, r = .03 to .86 (Holmbeck et al., 2007). The CBCL (Achenbach, 1991) was translated into Thai by Weisz et al. (1987) and renamed the Thai Youth Checklist.

The Thai Youth Checklist (TYC, Weisz et al., 1987) is a Thai-language instrument that has been developed based on CBCL items. The questionnaire contained the original 118 problem items and 21 culturally specific items. The 118 CBCL problems were listed as the first items and were in the same order as on the CBCL. The competence items from the original CBCL have also been adapted for Thailand. The TYC response format was the same as for the CBCL: parents rated each problem item 0, 1, or 2. The alpha coefficient was .96 for the total scores (.89 for internalizing; .91 for externalizing). In two studies (Weisz et al., 1993, 1987), one-week test–retest for the Total Problem scores were .81 to .86. The construct validity of the TYC, like that of the CBCL, is supported by evidence that items form broadband Internalizing and Externalizing scales (Weisz et al., 1997).

In this study, disruptive behavior is assessed using the Child and Adolescent Disruptive Behavior Inventory (CADBI, Burns et al., 2000; 2008; 2009). This is because

the CADBI construct clearly defines CD, ODD and ADHD symptoms and has been developed based on disruptive behavior found in the DSM-IV. In addition, the feasibility of the instrument is another consideration. The instrument was designed to be easily administered and cost effective. Parents are asked to complete the questionnaire by rating each symptom on a frequency of occurrence scale for past months. This response format is less subjective than the more typical *never*, *sometimes*, *often*, and *very often* anchors in other instruments. In addition, the instrument has good psychometric properties (Burns et al., 2000; 2008; 2009; 2013) and has been used in Thai adolescents (Burns et al., 2009).

**3. Depression**

**3.1 Definition of depression**

Depression has been recognized as a major public health problem (Williams, Hagerty, & Ketefian, 2005). There are two main considerations when depression is studied as a dependent variable: depression as a diagnostic disorder and depression as a symptom assessed by self-report (Brunwasser, Gillham, & Kim, 2009; Cook, Peterson, & Sheldon, 2009; Haeffel et al., 2008).

Depression has been defined as a disorder. As with all disorders defined by the DSM, the key is that the combination of symptoms is significant enough to cause distress and/or to interfere with functioning (Wenar & Kerig, 2006). The criteria for major depressive episodes are explained.

**The DSM-IV-TR criteria for major depressive episodes (APA, 2000) as showed as follow:**

A. Five (or more) of the following symptoms have been present during the same 2-week period and represent a change from previous functioning: (1) Depressed mood most of the day, nearly every day, as indicated by either subjective reports or observation made by others (in adolescents can be irritable mood). (2) Markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day (as indicated by either subjective account or observation made by others). (3) Significant weight loss or weight gain when not dieting, or decrease or increase in appetite nearly every day. (4) Insomnia or hypersomnia nearly every day. (5) Psychomotor agitation or retardation nearly every day (observation by others, not merely subjective feeling of restlessness or being slowed down). (6) Fatigue or loss of energy nearly every day. (7) Feelings of worthlessness or excessive or inappropriate guilt (which may be delusional) nearly every day (not merely self-approach or guilt about being sick). (8) Diminished ability to think or concentrate, or indecisiveness, nearly every day (either by subjective account or as observed by others). (9) Recurrent thoughts of death (not just fear of dying), recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide.

B. The symptoms are not accounted for by bereavement and are not due to the effects of a substance or medical condition.

Secondly, depression has been defined as experiencing depressive symptoms. Depression refers to depressive mood, feelings of guilt and worthlessness, feelings of helplessness and hopelessness, psychomotor retardation, loss of appetite and sleep disturbance (Radloff, 1977). These symptoms have been assessed using instruments such as the Center for Epidemiologic Studies-Depression Scale (CES-D, Radloff, 1977) and the Beck Depression Inventory (BDI, Beck, Steer, & Brown, 1996).

In this study, depression is defined as a specific alteration in mood including depressed mood, feelings of guilt and worthlessness, feelings of helplessness and hopelessness, psychomotor retardation, loss of appetite and sleep disturbance. These symptoms are assessed using applicable instruments.

**3.2 Measurement of depression**

A variety of different instruments has been used by academics to measure adolescent depression. Measurement instruments can be dichotomized into different functional domains: diagnostic identification and symptom evaluation (Brooks & Kutcher, 2001). The diagnostic tools are either fully structured or semi-structured interview schedules and are characterized as respondent based or interviewer based. For symptom evaluation, two types of instruments exist: observer-rated and self-rated scales (Brooks & Kutcher, 2001).

One commonly used instrument for symptom evaluation is the Center for Epidemiological Studies- Depression scale (CES-D) (Brooks & Kutcher, 2001). The CES-D is a 20-items questionnaire designed to cover the major components of

depression. Items in this scale are selected to represent the major components of depression based on clinical literature and factor analytic studies. Components include depressed mood, feelings of worthlessness, feelings of hopelessness, loss of appetite, poor concentration and sleep disturbance. CES-D scores range from 0 to 60; higher scores indicate more severe depressive symptoms. A score of 16 or above indicates as having depression (Radloff, 1991). In depressive symptom screening, a cut-off score of 16 shows sensitivity ranging from 86% to 100% and is a useful cut-off for detecting depressive symptoms in a variety of populations across cultures (Radloff, 1991). Moreover, a cut-off score of 16 for the CES-D has been used for research in the area of depressive symptoms in adolescents (e.g., Fergusson, Horwood, & Lynskey, 1995), including Thai adolescents (Vongsirimas et al., 2009).

The CES-D has demonstrated acceptable reliability in adolescent populations. Coefficient alphas were .85 to .87 in adolescent sample studies (Radloff, 1991). The CES-D has been translated into several languages including Thai (Trangkasombat et al., 1997). The Thai version tested psychometric properties in male adolescent participants, 15-18 years old, and psychiatrists who were blind to the results evaluated them. The Thai version showed sensitivity 72%, specificity 85% and accuracy 82% (Trangkasombat et al., 1997). The CES-D had acceptable reliability when it was used with Thai adolescents, alpha were .76 to .88 (Charoensuk, 2007; Vongsirimas et al., 2009; Trangkasombat et al., 1997).

Another instrument, the Children's Depression Inventory (CDI). The CDI is a downward version of the Beck Depression Inventory developed by Kovacs (1981) for the assessment of depression in childhood and adolescence. The CDI has a 27 item, self-report, symptom-oriented scale for children and adolescents aged 7 to 17 years old. The CDI consists of five dimensions: negative mood (6 items), ineffectiveness (4 items), negative self-esteem (5 items), anhedonia (8 items) and interpersonal problems (4 items). Each item consists of three self-evaluation sentences with a score of 0, 1, or 2. The final scores range from 0 to 54, the higher the score, the higher level of depression. Trangkasombat & Likanapichitkul (1997) translated the CDI into Thai. The results from Trangkasombat & Likanapichitkul's (1997) study of Thai participants, 10- 15 years old, found that the CDI efficiently differentiated depressed participants from non-depressed participants. A cut-point of 15 produced the best overall screening characteristics (sensitivity = 79%, specificity = 91% and accuracy = 87%). Cronbach's Alpha coefficient of the CDI Thai version was .83. However, the researchers suggested that some CDI items might be inappropriate for use with adolescent participants. Trangkasombat & Likanapichitkul (1997) proposed that the CES-D may be used instead.

In this study, depression is assessed using the CES-D because the instrument can assess the construct of interest and it has been used to assess this construct in Thai adolescents. Besides, the psychometric properties of the instrument have been tested and accepted as reliable. Additionally, prior studies have suggested that the

CES-D has items, which are more relevant for use with adolescent populations than other instruments.

4. The co-occurrence of disruptive behavior and depression among adolescents

**4.1 Definition of the co-occurrence of disruptive behavior and depression**

From the Merriam-Webster.com dictionary (2013a), occurrence is something that occurs, or is present. “Co” is a prefix, which indicates “with”, “together” <coexist>; “relating to”. Therefore, co-occurrence is more than one thing occurring or being present at the same time as another. From Visualthesaurus.com (2013), co-occurrence is an event or situation that happens at the same time as or in connection with another.

From a psychiatric nursing perspective, the term “co-occurrence” refers to the presence of two psychiatric problems in the same person (Boyd et al., 2008). A term that is interchangeable with co-occurrence is comorbidity. Comorbidity is “the concurrent existence of two or more disorders” (Fortinash & Worret, 2008, p. 395).



In this study, the two psychiatric problems of interest are disruptive behavior and depression. Therefore, co-occurrence of disruptive behavior and depression is defined as the presence of disruptive behavior and depression in an adolescent. The co-occurrence of disruptive behavior and depression is assessed by considering adolescent disruptive behavior and depression scores. Higher CADBI and CES-D scores

indicate more frequent co-occurrence of disruptive behavior and depression symptoms in an adolescent.

**4.2 Co-occurrence of disruptive behavior and depression among adolescents**

Based on Wolff & Ollendick (2006) reviewed on the co-occurrence of disruptive behavior and depression in children and adolescents. They found that four possible explanations for the co-occurrence of disruptive behavior and depression in children and adolescents: (1) it may be methodology artifact; (2) it may be the extent of overlapping definitional criteria; (3) one problems may cause or puts an individual at risk for the other; (4) two problems can be co-occurred because they share underlying risk factors.

Among those explanation, they highlight the last two explanations. Firstly, co-occurrence of disruptive behavior and depression exists because one problem causes or puts an individual at risk for the other. Regarding the first possible explanation, three such types of association may occur between these problems: disruptive behavior preceding depression (e.g. Capaldi, 1991; 1992; Capaldi and Stoolmiller, 1999), depression preceding disruptive behavior (e.g. Kovacs et al., 1988) and disruptive behavior and depression may be reciprocally related so that they influence one another in a simultaneous fashion (Wolff & Ollendick, 2006).

Secondly, the co-occurrence of disruptive behavior and depression may be explained by shared underlying causal or common risk factors. The risk factors for one problem may be the same as the risk factors for the other. Research questions of vulnerabilities, risk factors, and familial (genetic and environmental) transmission that involve adolescent characteristics and the familial and extra-familial context in development are the forefront of studies on co-occurrence of these problems..

Several studies on the co-occurrence of disruptive behavior and depression among adolescents (e.g. Chen and Simons-Morton, 2009) and relevant research showing the correlation between disruptive behavior and depression were collated. The correlation between disruptive behavior and depression such as $r = .30$ ($p < .01$) Chen & Simon-Morton (2009). It was found that disruptive behavior and depression were positively correlated with for male and female adolescents. These findings support the scenario of disruptive behavior and depression co-occurring.

**In summary.** This study would examine the relationship between disruptive behavior and depression among Thai adolescents. In addition, this study would examine factors influencing co-occurrence of disruptive behavior and depression among Thai adolescents. The co-occurrence of DB and depression model would be helpful for more understanding the phenomena in Thai adolescents. The findings on the relationship between disruptive behavior and depression and direct and indirect effect among factors influencing co-occurrence of DB and depression in this study

may helpful to guide the factors that nursing intervention program should be included.

**5. Factors influencing the co-occurrence of disruptive behavior and depression in adolescents**

As nursing focus on improving adolescent health, the better understand the relationships among factors influencing co-occurrence of DB and depression in adolescents will facilitate the design of optimally effective nursing interventions for them. This section would be present three topic: (5.1) research on the co-occurrence of disruptive behavior and depression, (5.2) research on the co-occurrence of disruptive behavior and depression in Thailand, and (5.3) Factors influencing the co-occurrence of disruptive behavior and depression in adolescents. Details were presented as follows.

**5.1 Research on the co-occurrence of disruptive behavior and depression among adolescents**

Studies, which examined factors influencing the co-occurrence of disruptive behavior and depression were also found and were presented as follows. Research on the co-occurrence of disruptive behavior and depression among adolescents are presented in this section as these follows.

Burke et al. (2010) studied a community sample of 2,451 female participants, followed up annually over a 5-year period, using parent, participant and teacher

questionnaires. The results revealed that childhood ODD was a significant predictor of disruptive behavior (IRR = 1.10, SE = .02, p < .001, 95% CI 1.07 – 1.13) and depression (IRR = 1.05, SE = .01, p < .001, 95% CI 1.04 – 1.07).

Other study, Burke et al. (2005) studied 177 male children and adolescents, aged 7 to 12 years old at baseline assessment and reassessed them annually until they reached the age of 18. The study was based on Capaldi and Patterson's failure model of conduct disorder and depression. The results revealed that age was not significantly associated with disruptive behavior and depression. Childhood ODD was a predictor of disruptive behavior (IRR= 1.05, SE=.015, *p* = .001, 95%CI 1.02 – 1.08) and depression (IRR= 1.05, SE = .02, *p* = .008, 95%CI 1.01- 1.09) in adolescents.

Next study, Chen & Simon-Morton (2009) studied 2,453 adolescents. Psychosocial and family factors were identified as precursors to the co-occurrence of disruptive behavior and depression. The study found that positive parenting behavior was negatively associated with disruptive behavior and depression (*r* = -.24 to -.33, p < .01). Whereas, negative parenting behavior was positively associated with disruptive behavior and depression (*r* = .27 to .36, *p* < .01). Social competence was negatively associated with disruptive behavior and depression (*r* = -.21 to -.42, p < .01). Deviant peer affiliation (or problem peer association) was positively associated with disruptive behavior (*r* = .45 for male and *r* = .44 for female, p < .01) and depression (*r* = .22 for male, *p* < .01 and r = .21 for female, p > .05). Socioeconomic status was not

significantly associated with either disruptive behavior in males or depression in females.

Next study, Diamantopoulou et al. (2010) studied 507 children, aged 6-8 at the beginning of study. The Parent's ratings of the children's symptoms of ADHD, ODD, Anxiety/Depression symptoms were studied in early childhood (Time 1). The participants were adolescents aged 14 to 16 at Time 5 (406 adolescents) and they were young adults aged 20 to 22 at Time 6 (421 young adults). This study tested the theoretical model suggested by Loeber et al. (2000) to demonstrate that antisocial personality problems in adulthood might be predicted by behavior and emotional problems in early childhood and adolescence. Disruptive behavior (CD) in adolescence appears to emerge from milder forms of disruptive behavior in childhood, that is, ODD and ADHD. Symptoms of depression such as irritability or hopelessness may increase levels of disruptive behavior by reducing concern for the consequences of that behavior and fueling interpersonal conflict. The final path analysis model shows the developmental sequences between disruptive behavior and co-occurring problems in childhood and adolescence and antisocial personality problems in young adulthood, as shown in figure 2.

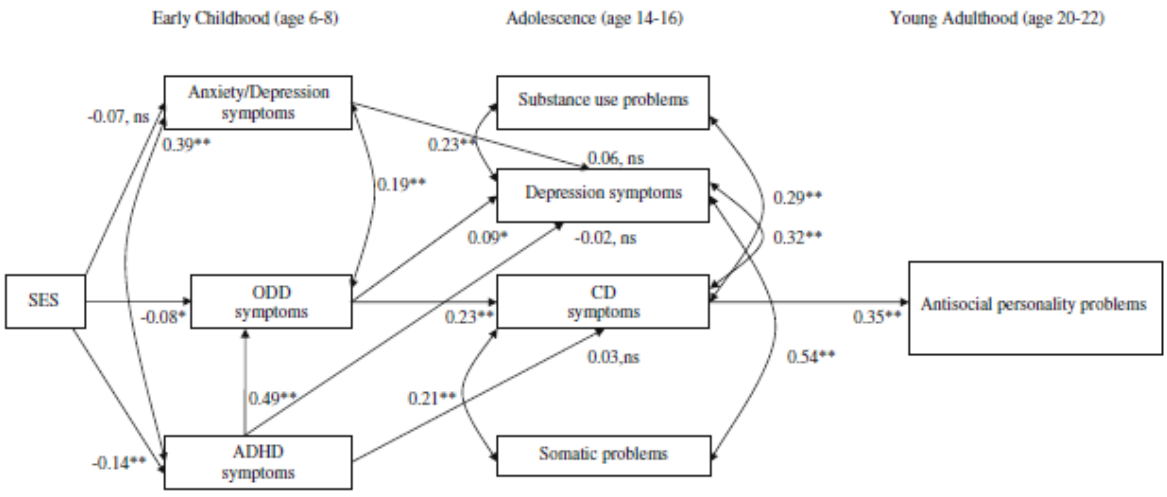



**Figure 2 The final path analysis model (Diamantopoulou et al., 2010)**

The developmental pathways do not differ by gender. The results from this longitudinal study found that Childhood ODD was a significant predictor of disruptive behavior and depression symptoms in adolescence.

Next study, Drabick et al. (2006) used the SEM to examine potential predictors of disruptive behavior and depression in a clinic-based sample of boys with ADHD, defined by mother versus teacher reports. Participants were recruited from a child psychiatry outpatient clinic (55%), a support group for parents of children with ADHD (39%) and directly from parents, schools or other professionals (6%). The shared risk factor constructs were formed based on the prior selection of indicators (Patterson et al., 2000). The shared risk factors were parenting behavior, family environment, academic/cognitive functioning and social problems. The study found that parenting behavior was a predictor of disruptive behavior and depression.

Family environment characterized by high conflict, low cohesion and low family satisfaction with relationships were found to be related to disruptive behavior and depression. Social problems were also related to depression. Additionally, academic/cognitive variables were not predictive of disruptive behavior and depression symptoms. The variables in the study model accounted for 10 % of the variance in CD for the mother- and teacher-defined ADHD groups, and 39% and 26 % of the variance in depression (depressive symptoms) for the mother-and teacher-defined ADHD groups, respectively.

Next study, Sourander & Helstelä (2005) studied 609 Finnish children and adolescents at two time-points, the mean age at the first time-point was 8.5 years (SD = 0.5) and the mean age at the second time-point was 16.0 (SD = 0.5). At baseline, three informants were used: a child, a parent and a teacher. At the second time-point, information was obtained only from parents. The multivariate logistic regression analysis found that family environment could independently be a predictor of disruptive behavior (including conduct, hyperactivity) and internalized problems (including depression) (OR = 3.2, 95%CI 1.2 – 8.4, $p < .05$ and OR = 2.8, 95%CI 1.2 – 6.4, $p < .05$).

Another research, Ezpeleta et al. (2005) studied 291 Spanish participants from two outpatient settings based on contextual factors. Their age mean was 13.64 (SD = 2.40.) The participants were divided into three groups: a depressed group [major depression or dysthymia (MDD/DD)] (n=66), a conduct group [conduct or oppositional

defiant disorder (CD/ODD)] (n=135) and co-occurrence group [comorbid conduct/ oppositional defiant disorder and depression (COM)] (n= 90), which met DSM-IV criteria. The study found that 40.4% of participants with CD/ODD (n=225) had co-occurring MDD/DD. The study contained data on the psychosocial contextual risk factors of the three groups: COM, pure depression and disruptive behavior. There were marked differences between the COM and the pure depression groups and very few differences between the COM and pure CD/ODD groups. The significant differences between COM and pure depression groups were friends, school, parenting behavior, and family environment. The results revealed that participants in the COM group had fewer friends (OR = 1.50, 95% CI 0.67-3.38, $p < .05$), more likely to associate with deviant peers (OR = 1.59, 95% CI 0.67-3.76, $p < .05$ and OR = 5.04, 95% CI 1.28-9.78, $p < .05$). The family environment of the COM and MDD/DD group was significantly different. The COM group reported poorer relationships with their mothers, fathers, siblings and did not feel supported at home (OR = 3.03, 95% CI 1.38-6.65, $p < .05$; OR = 0.22, 95% CI 0.08-0.62, $p < .05$; OR = 3.25, 95% CI 1.52 – 6.95, $p < .05$; and OR = 6.27, 95% CI 1.34-29.4, $p < .05$ respectively). The COM group had poorer relationships with peers and teachers (OR = 4.57, 95% CI 1.75-11.9, $p < .05$ and OR = 3.63, 95% CI 1.37-9.58, $p < .05$ respectively).

Next study, Subbarao, Rhee, Young, Ehringer, Corley & Hewitt (2008) studied 570 monozygotic twin pairs, 592 dizygotic twin pairs, and 426 non-twin siblings, aged 12–18 years recruited from the Colorado Twin Registry. Forty percent of the

participants were males. The results revealed that the correlation between depression and conduct disorder was .27 to .29. The study examined genetic and environmental influences on the co-occurrence of depression and conduct disorder in adolescents. The correlation between the genetic influences on depression and disruptive behavior was statistically significant for the past year ($r_g$= 0.59) and lifetime ($r_g$= 0.41). The results suggested that some genetic factors would increase an individual's vulnerability to both depression and disruptive behavior in adolescence.

In summary, based on the evidence, there is an association between disruptive behavior and depression. There were important factors influencing both of disruptive behavior and depression in adolescents. These factors were childhood ODD (Burke et al., 2005; 2010; Diamantopoulou, 2010), parenting behavior (Chen & Simon-Morton, 2009; Drabick et al., 2006; Ezpeleta et al., 2005), family environment (Drabick et al., 2006; Ezpeleta et al., 2005; Sourander & Helstelä, 2005; Subbarao et al., 2008), deviant peer affiliation (Chen & Simon-Morton, 2009; Ezpeleta et al., 2005), and social competence (Burt et al., 2008; Chen & Simon-Morton, 2009). This literature review factors influencing co-occurrence of disruptive behavior and depression in adolescents could be summarized in Table 1.

**Table 1 Summary review of the relationship between the key construct variables and co-occurrence of disruptive behavior and depression in adolescents**

| Study | Participants | Variable | Relationship with | |
|---|---|---|---|---|
| | | | Disruptive behavior | Depression |
| <u>Key construct: Childhood ODD</u> | | | | |
| Burke et al. (2010) | 2,451 female participants, 5 to 8 years old at time1 and follow up annually over a 5-year period | ODD in early childhood | IRR = 1.03, SE = .01, p = .001, 95% CI 1.02 – 1.05 to IRR = 1.10, SE = .02, p < .001, 95% CI 1.07 – 1.13 | IRR = 1.05, SE = .01, p < .001, 95% CI 1.04 – 1.07 |
| Burke et al. (2005) | 177 male children and adolescents, age 7 to 12 years old at baseline assessment, and were reassessed annually until age 18 | ODD in Time T | IRR= 1.05, SE=.015, p= .001, 95%CI 1.02– 1.08 | IRR= 1.05, SE = .02, p = .008, 95%CI 1.01- 1.09 |
| Diamanto - poulou et al. (2010) | 507 children, aged 6-8 at the beginning of study; they were adolescents aged 14-16 at Time 5 (406 adolescents) and were young adults aged 20 to 22 at Time 6 (421 young adults). | ODD symptoms in early childhood (Time 1) | r = .26, p < .01; $\beta$ = .23, p <.01 | r = .15, p < .01; $\beta$ = .09, p <.05 |

**Table 1: Summary review of the relationship between the key construct variables and co-occurrence of disruptive behavior and depression in adolescents (cont)**

| Study | Participants | Variable | Relationship with | |
|---|---|---|---|---|
| | | | Disruptive behavior | Depression |
| **Key construct: Parenting behavior** | | | | |
| Chen & Simon-Morton (2009, p. 295) | 2,453 adolescents with co-occurrence of CP and depression (1,120 males and 1,333 females), in five waves from grade 6 to 9 | Parenting behavior: Parental involvement (positive parenting behavior) | r = -.24, p <.01 (male)<br>r = -.33, p <.01 (female) | r = -.26, p <.01 (male)<br>r = -.29, p <.01 (female) |
| | | Parent- child conflict (parent emotional/hostile interactions with his/her child) | r = .27, p <.01 (male)<br>r = .30, p <.01 (female) | r = .26, p <.01 (male)<br>r = .36, p <.01 (female) |
| Drabick et al. (2006) | 248 participants with ADHD | Parenting behavior | $\beta$ = .18, p<.05 (mother report);<br>$\beta$ = .21, p <.05 (teacher report) | $\beta$ = .13 NS (mother report);<br>$\beta$ = .24, p <.05 (teacher report) |

**Table 1: Summary review of the relationship between the key construct variables and co-occurrence of disruptive behavior and depression in adolescents (cont)**

| Study | Participants | Variable | Relationship with | |
|---|---|---|---|---|
| | | | Disruptive behavior | Depression |
| <u>Key construct: Parenting behavior</u> | | | | |
| Ezpeleta et al. (2005) | 291 children and adolescents, 8 to 17 years old (mean 13.64, SD 2.40), divided into three groups: depressed group (n=66), conduct group (n=135), co-occurrence group (n=90) | **Parenting behavior:**<br><br>Parental monitoring<br><br>Parental discipline practices | Differential parenting behavior between co-occurrence of CD and depression group and pure depression group:<br><br>OR = 0.32 (95% CI 0.15-0.68), p < .05 (parent report); OR = 0.56 (95% CI 0.32-0.99), p < .05 (child report)<br><br>OR = 3.03 (95% CI 1.29-7.09), p < .05 (father); OR = 5.08 (95% CI 2.04-5.17), p < .05 (mother) | |

**Table 1: Summary review of the relationship between the key construct variables and co-occurrence of disruptive behavior and depression in adolescents (cont)**

| Study | Participants | Variable | Relationship with | |
|---|---|---|---|---|
| | | | Disruptive behavior | Depression |
| <u>Key construct: Family environment</u> | | | | |
| Drabick et al. (2006) | 248 participants with ADHD | Family environment | $\beta$ = .17, p < .05 (mother report); $\beta$ = .18, p < .05 (teacher report) | $\beta$ = .41, p < .01 (mother report); $\beta$ = .49, p < .01 (teacher report) |
| Sourander & Helstela (2005) | 609 children and adolescents at two time-points, at age 8 and age 16 years, Finland | Family environment | OR = 3.2, 95% CI 1.2 – 8.4, p < .05 (in male adolescents) | OR = 2.8, 95% CI 1.2 – 6.4, p < .05 (in male adolescents) |
| Subbarao et al. (2008) | 570 monozygotic twin pairs, 592 dizygotic twin pairs, and 426 non-twin siblings, aged 12–18 years. | Shared environmental influences | Shared environmental influences ($c^2$ = .03 for past year and .00 for lifetime) on CD | Shared environmental influences ($c^2$ = .16 for past year and .09 for lifetime) on depression |
| Ezpeleta et al. (2005) | 291 children and adolescents, 8 to 17 years old (mean 13.64, SD 2.40), divided into 3 groups: depressed gr (n=66), a conduct gr (n=135), a co-occurrence gr (n=90) | **Family environment**<br>Poor relationships<br>with mother<br>with father<br>with siblings<br>Did not perceive support at home | Differential family environment between co-occurrence of CD and depression group and pure depression group:<br><br>OR = 3.03 (95% CI 1.38-6.65) , p < .05<br>OR = 0.22 (95% CI 0.08-0.62) , p < .05<br>OR = 3.25 (95% CI 1.52 – 6.95), p < .05<br>OR = 6.27 (95% CI 1.34-29.4) , p < .05 | |

**Table 1: Summary review of the relationship between the key construct variables and co-occurrence of disruptive behavior and depression in adolescents (cont)**

| Study | Participants | Variable | Relationship with | |
|---|---|---|---|---|
| | | | Disruptive behavior | Depression |
| <u>Key construct: Deviant peer affiliation</u> | | | | |
| **Chen & Simon-Morton (2009)** | 2,453 adolescents with co-occurrence of CP and depression (1,120 males and 1,333 females), in five waves from grade 6 to 9 | Deviant peer affiliation | r = .45, p <.01 (male)<br>r = .44, p <.01 (female) | r = .22, p <.01 (male)<br>r = .21, p > .05, NS (female) |
| Ezpeleta et al. (2005) | 291 children and adolescents, 8 to 17 years old (mean 13.64, SD 2.40), divided into three groups: a depressed group (n=66), a conduct group (n=135), a co-occurrence group (n=90) | Have friends who having problems behaviors | Differential contextual factors (Have friends who having problems behaviors) between co-occurrence of CD and depression group and pure depression group : OR = 5.04 (95% CI 1.28-9.78) , p < .05; OR = 1.59 (95% CI 0.67-3.76) , p < .05 | |

**Table 1: Summary review of the relationship between the key construct variables and co-occurrence of disruptive behavior and depression in adolescents (cont)**

| Study | Participants | Variable | Relationship with | |
|---|---|---|---|---|
| | | | Disruptive behavior | Depression |
| **Key construct: Social competence** | | | | |
| Burt et al. (2008) | a longitudinal cohort (n = 205) of 8-to-12 years old children reassessed after 7,10, and 20 years | Social competence | r = -.46, p < .001 | r = -.54, p < .001; $\beta$ = -.35, p <.05 |
| Chen & Simon-Morton (2009, p. 295) | 2,453 adolescents with co-occurrence of CP and depression (1,120 males and 1,333 females), in five waves from grade 6 to 9 | Social competence | r = -.42, p < .01 (male); r = -.40, p < .01 (female) | r = -.32, p < .01 (male); r = -.34, p > .05, NS (female) |



**5.2 Research on the co-occurrence of disruptive behavior and depression among adolescents in Thailand**

Although no specific studies on the co-occurrence of disruptive behavior and depression among Thai adolescents were found, some useful data on this phenomenon in Thai adolescents was available.

Trangkasombat (2008) studied the clinical characteristics of 202 participants, aged from under 5 years to above 16 years, who were diagnosed with ADHD, 77.2 % were males and 22.8% were females. Most cases were in the 6-12 years age group and came from small families with 1-2 children. The most frequent chief complaints were academic/learning problems (47% of the sample). Almost one-fourth of the sample came for problems not directly related to ADHD. The most frequent complaints were aggressive and oppositional behavior. Comorbidity was found in 53.5%. Among cases that received stimulants, 28% needed the combination of other psychotropic medications, mostly antidepressant and anxiolotic drugs. The researcher noted that "as ADHD is increasingly diagnosed in Thai children, more research is needed" (Trangkasombat, 2008: p. 1897).

Visanuyothin et al., (2013) used three-stage stratified sampling to estimate the national ODD prevalence of Thai grade 1-5 primary school students. The results revealed that 521 and 200 of 7,118 participants were diagnosed ADHD and ODD, making the national prevalence 8.1% (95% CI = 7.5-8.7). The prevalence in males was 12% (95% CI = 10.9-13). Whereas, the prevalence in females was 4.2% (95% CI = 3.6-4.9). The ratio of prevalence male to female was 3:1. The prevalence of ODD was 3.1% (95% CI = 2.7-3.5), the highest, which was found in Bangkok was 5.5% (95% CI = 3.7-7.2).

Kaewsakulthong (2009) studied depression among 286 adolescent psychiatric patients in three hospitals/institutes: the Child and Adolescent Mental Health

Rajanakaridra Institute (CAMRI) (n = 42), Srithanya hospital (n = 148) and Yuwaprasart Waithayopathum Child Psychiartric Hospital (n = 96). From the study, depression and co-morbidity among adolescent psychiatric patients including adolescents with Attention-Deficit/Hyperactivity Disorder and Conduct Disorder was found to be 61.54%.

In summary, the empirical data from these Thai studies demonstrate clinical evidence for disruptive behavior and depression in Thai adolescents. No studies were found study on the relationships between disruptive behavior and depression and the relationships among such factors influencing both disruptive behavior and depression in Thai adolescents.

**5.3 Factors influencing the co-occurrence of disruptive behavior and depression in adolescents**

The review of the literature on co-occurrence of disruptive behavior and depression in adolescents confirms that there are important factors, which influence disruptive behavior and depression: childhood ODD (Burke et al., 2005; 2010; Diamantopoulou et al., 2010), parenting behavior (Chen & Simon-Morton, 2009; Drabick et al., 2006; Ezpeleta et al., 2005), family environment (Drabick et al., 2006; Ezpeleta et al., 2005; Sourander & Helstelä, 2005; Subbarao et al., 2008), deviant peer affiliation (Chen & Simon-Morton, 2009; Ezpeleta et al., 2005) and social competence (Burt et al., 2008; Chen & Simon-Morton, 2009). These factors are further defined as follows.

### 5.3.1. Childhood ODD

#### 5.3.1.1 Definition of childhood ODD

Burke et al. (2010; 2005) define childhood ODD as occurring in an adolescent who has a history of oppositional defiant disorder symptoms in early childhood. The symptoms were assessed when the participants were children. Years of early age childhood were defined in each study by the researchers such as 5 to 8 years old (Burke et al., 2010), 7 to 12 years old (Burke et al., 2005), 6 to 7 years old (Boylan et al., 2010), 6 to 8 years old (Diamantopoulou el al., 2010).

In this study, childhood ODD is defined as adolescent has a history of Oppositional Defiant Disorder (ODD) symptoms during childhood. With reference to previous studies, the childhood period is considered 6 to 8 years. In addition, that period of life is a significant transition phase for children who go from preschool to school age. This is usually a difficult time for children who have ODD symptoms, the parents and others.



#### 5.3.1.2 Measurement of childhood ODD

Longitudinal studies have assessed ODD symptoms during the childhood period of an adolescents' life (Burke et al., 2005). ODD symptoms have been assessed using instruments such as the CBCL /4-18 (Achenbach, 1991) and the Diagnostic Interview Schedule for Children (DISC, Costello et al., 1987). The Diagnostic Interview Schedule for Children was used to assess DSM-IIR symptoms during the

prior 6 months. The child and parent were interviewed using the tool to assess the ODD symptoms (Burke et al., 2005). Most of these studies used data from parental reports because previous findings suggest that child reporting of ODD lacked utility (Loeber et al., 1991).

In this study, childhood ODD is assessed using a Childhood ODD questionnaire developed by the researcher. The questionnaire consists of an items, which enquire about the adolescent's history of ODD symptoms during childhood. The parents are asked to rate adolescent's history of ODD symptoms during childhood on a 5-point scale. A score of 0 indicates the adolescent does not have a history of ODD symptoms during childhood. A score from 1 to 4 indicates that the adolescent had a history of ODD symptoms during childhood, higher scores indicate more frequent occurrences of ODD symptoms during childhood.

**5.3.1.3 The relationship between childhood DOO, disruptive behavior, and depression**

Literature showed that oppositional defiant disorder (ODD) is the most common psychiatric problem of childhood. Prevalence estimates ranged between 2 and 14 % in epidemiologic studies and 28 to 50% in clinic studies (Boylan et al., 2007). In Thai study, Visanuyothin et al., (2013), used three-stage stratified sampling, and estimates of the national prevalence of ODD of Thai students graded 1-5 in primary school. The results showed that prevalence of ODD was 3.1% (95% CI= 2.7-3.5), which was found highest in Bangkok (5.5%, 95% CI= 3.7-7.2).

One of the important predictors of disruptive behavior and depression in adolescents is initial disruptive behavior during childhood (Burke & Loeber, 2010; Boylan et al., 2012; Fanti & Henrich, 2010). Among CD/ODD/ADHD, childhood ODD is most consistently found to be associated with DB and depression in adolescents (e.g., Burke et al, 2010). Researchers who have studied the development of problem behavior found that generally, a sequential progression of one form of problem behavior occurs before the emergence of another. As adolescents progress through this sequence, they tend to maintain their prior problem behavior as behavior that is retained rather than replaced (Wenar & Kerig, 2006). Besides, childhood ODD may place children on a developmental pathway to negative interactions with parents and other negative social interactions that lead to emotional problems such as depression. Several longitudinal studies have found that childhood ODD was significantly associated with disruptive behavior and depression in adolescents (Burke et al., 2005; Burke et al., 2010; Diamantopoulou et al., 2010).



Burke et al. (2010) longitudinally studied a community sample, 5 to 8 years old at time 1 and followed up annually over a 5-year period, using parent, participant and teacher questionnaires. The results revealed that childhood ODD was a significant predictor of disruptive behavior (IRR = 1.10, SE = .02, $p < .001$, 95% CI 1.07 – 1.13) and depression (IRR = 1.05, SE = .01, $p < .001$, 95% CI 1.04 – 1.07) in adolescents. In addition, Burke et al. (2005) also found that childhood ODD was a predictor of disruptive behavior (IRR= 1.05, SE=.015, $p$ = .001, 95%CI 1.02 – 1.08) and

depression (IRR= 1.05, SE = .02, *p* = .008, 95%CI 1.01- 1.09) in adolescents. Moreover, Diamantopoulou et al. (2010) studied 507 children who had behavioral and emotional problems in early childhood at Time 1. These participants were adolescents at Time 5 (406 adolescents). The results from this longitudinal study revealed that childhood ODD was a significant predictor of both CD symptoms and depression in adolescents. Based on the above research, childhood ODD is one of the factors, which influences disruptive behavior and depression in adolescents.

**5.3.1.4 The relationships between childhood ODD, parenting behavior, disruptive behavior and depression**

Granic & Patterson (2006) propose an emotional process in the negative dyadic interaction. Through conflicting interactions, parents and children both might be angry or distressed. Each may perceive the other as intentionally frustrating some goal. They may demonstrate negative behavior trying to control each other. Usually, children with childhood ODD do not comply with parent/adult demands and are less responsive to parental requests. Parenting children with these characteristics is demanding and time-intensive, which can lead to inconsistent discipline. Longitudinal studies have found that childhood ODD is associated with the co-occurrence of disruptive behavior and depression (e.g., Burke et al., 2005). In addition, an association between parenting behavior and the co-occurrence of disruptive behavior and depression in childhood and adolescence has been

established. Therefore, childhood ODD is presumed to have an indirect effect on disruptive behavior and depression among adolescents via parenting behavior.

**5.3.2 Parenting behavior**

**5.3.2.1 Definition of parenting behavior**

Understanding parent-child interactions and relationships are important to nursing science and practice (Blake, 1954). This understanding is also important to mental health and psychiatric nurses that are interested in adolescent populations. A relationship develops and changes through interaction (Hinde, 1976; Hinde and Stevenson-Hinde, 1988). Riesch et al. (2010) reviewed articles on parent-adolescent interaction and relationships. They found that the studies and reviews demonstrated that parents were usually mothers.

Generally, the definition of parenting behavior is related to parent-child interaction. The review of literature includes several perspectives on parenting behavior. For example, Schaefer (1959; 1965) a Professor in Psychology, one of the initiators of parenting behavior theory. A conceptual model that was previously developed from his factor analyses of psychologists' ratings of parenting behavior guided Schaefer's (1959) concepts of parenting behavior. From that initial conceptual model, he found two orthogonal dimensions: Love/Hostility and Control/Autonomy. Schaefer's (1965) three dimensions were (i) Acceptance versus Rejection, (ii) Psychological Autonomy and Psychological Control and (iii) Firm Control versus Lax Control.

A Thai study based on Schaefer's dimensions by Chaowakeeratiphong (1992) defined parenting behavior as parent-child rearing practices as perceived by the adolescent. Parenting behavior consisted of three dimensions: Acceptance versus Rejection, Psychological Autonomy versus Psychological Control, and Firm Control versus Lax Control.

Cohen et al. (1977) also studied parenting behavior. In the study, parenting behavior was conceptualized on the basis of their previous studies and research by Becker (1964), Baumrind (1973), Sears et al. (1957), Schaefer (1961), Schaefer and Bayley (1963) and Schaefer et al. (1959). Cohen et al. (1977) refer to parenting behavior as child rearing practice when a parent interacts with an adolescent. From their factor analysis, parenting behavior consists of five behavioral dimensions, consistent with their theoretical concepts: (i) respect for autonomy, (ii) control through guilt, (iii) consistency, (iv) child-centeredness and (v) detachment. Respect for autonomy is a positive interaction when the parent interacts with the adolescent by respecting the adolescent's needs and giving him/her a great deal of independence. Child-centeredness is a positive interaction when the parent interacts with the adolescent by showing concern and warmth to the adolescent. Consistency is a positive interaction when the parent interacts with the adolescent by showing commitment and consistency to rules and procedures. Control through guilt is a negative interaction when the parent interacts with the adolescent by trying to shape the adolescent's behavior by making the adolescent feel guilty. Detachment is a

negative interaction when the parent interacts with the adolescent by withdrawing from the adolescent, especially when the parent is angered by the adolescent.

Another perspective on parenting behavior, Baumrind's perspective. Baumrind call the childrearing patterns as parenting style (Baumrind, 1997). The parenting concepts that were developed by Baumrind view two dimensions of parenting as essential: warmth/support and control/structure (Baumrind, 1991a; 1991b). By assessing parents with these two dimensions, Baumrind was able to derive three parenting behaviors: (1) authoritarian parenting behavior. This is high on structure but low on warmth. This parent is demanding, controlling and unreasoning, (2) permissive/indulgent parenting behavior. This is parent is high on warmth without an accompanying structure. This parent is undemanding, accepting and child centered and makes few attempts at control and (3) authoritative parenting behavior. This is high on both warmth and structure. This parent sets standards of mature behavior and expects the child to comply, but they are also highly involved, consistent, loving, communicative, willing to listen to the child, and respectful of the child's point of view. In addition, Maccoby & Martin (1983) added a fourth style, neglectful parenting. This parent is low on both warmth and structure. Their behavior is uninvolved or self-centered. Most studies on parenting behavior by Thai researchers appear to focus on the above four parenting styles: authoritative, authoritarian, permissive and neglectful (e.g. Kotrajaras & Yongkittikul, 2002; Maneesri & Uwanno, 2003).

Cui & Conger (2008) consider parenting behavior as consisting of two dimensions: positive behavior in parenting (inductive reasoning, positive child management and warmth/supportiveness) and negative behavior in parenting (inconsistent parenting, hostile parenting and harsh discipline).

Drabick et al. (2006) refer to parenting behavior as the parent's perception of how he/she interacts with his/her child. Parenting behavior consists of three behavioral dimensions: consistency, control through guilt/hostility and detachment as assessed by the Parent's Report questionnaire (Cohen et al., 1977).

Chen & Simon-Morton (2009) refer to parenting behavior as an adolescent's perception of parental involvement and parent-child conflict. Parental involvement (or parental knowledge) refers to how much the parent knows about the teen's friends, activities, interests, health habits, free time and school. Parent-child conflict refers to parent emotional/hostile interactions with his/her child such as hard to get along with, often makes the adolescent angry and easily loses his/her temper with the adolescent. Parental involvement (or parental knowledge) attributes and Child-centered PR attributes (Cohen et al., 1977) can be seen as similar because they both focus on the parent's interaction with concern or knowledge of the adolescent's activities and life. Another attribute, parent-child conflict can be seen as similar to control through guilt/hostile in the PR.

In this study, parenting behavior is defined as positive child rearing practice when a parent interacts with an adolescent. Parenting behavior consists of

five behavioral dimensions: (i) respect for adolescent autonomy, (ii) consistency, (iii) child-centeredness, (iii) control through guilt and (iv) detachment. Respect for autonomy is a positive interaction when a parent interacts with an adolescent by respecting the adolescent's needs and giving him/her a great deal of independence. Child-centeredness is a positive interaction when a parent interacts with an adolescent by showing concern and warmth to the adolescent. Consistency is a positive interaction when a parent interacts with an adolescent by showing commitment and consistency to rules and procedures. Control through guilt is a negative interaction when a parent interacts with an adolescent by trying to shape the adolescent's behavior by making the adolescent feel guilty. Detachment is a negative interaction when a parent interacts with an adolescent by withdrawing from the adolescent, especially when the parent is angered by the adolescent.

**5.3.2.2 Measurement of parenting behavior**

Many instruments have been developed to assess parenting behavior. These are presented as these follows.



Firstly, the Parent's Report (PR, Cohen et al., 1977) was developed to measure parenting behavior. The instrument was conceptualized and the items were selected based on several previous studies (e.g. Becker, 1964; Baumrind, 1973; Schaefer & Bayley, 1963). Items represented, generally considered, socially desirable and socially undesirable types of interaction. The PR was devised by selecting categories of parenting behavior that covered the domain of parenting styles (Dibble

& Cohen, 1974) and continued to improve the psychometric properties over several studies (Cohen et al., 1977). Cohen et al. (1977) performed factor analysis separately for ratings by fathers and mothers of boys and girls. All 1,508 questionnaires were combined for a final factor analysis. Five dimensions, consistent with the theoretical concepts used to design the questionnaire, accounted for 42.9% of the total variance. Items, loadings and factor structure were reported in the study. Factor scales were constructed by selecting four items from among the highest factor loading for each behavioral dimension. The scale consists of five behavioral dimensions: respect for autonomy, consistency, child-centeredness, control through guilt, detachment. Reliability and validity studies have been reported (Dibble & Cohen, 1974). Cronbach's alpha of five dimensions ranged from .67 to .90 (Cohen et al. 1977; Drabick et al., 2006).

Secondly, the parenting behavior questionnaire developed by Simon-Morton et al. (1999). Chen & Simon-Morton (2009) used this questionnaire. In their study, parenting behavior referred to an adolescent's perceived parental involvement and the parent-child conflict. The parent-child conflict was assessed with four items adapted from Robin and Foster (1989). Cronbach's alpha of the scale ranged from .76 to .82 (Chen & Simon-Morton, 2009).

Another instrument, the Children's Report of Parent Behavior Inventory (CRPBI) was used in Thai adolescents (Chaowakeeratiphong, 1992). In the study, parenting behavior was assessed by adolescents with the use of a revised form of

CRPBI (CRPBI-108, Schuldermann & Schuldermann, 1988). The CRPBI-108 consists of 108 items that assess three dimensions: (1) Acceptance VS Rejection; (2) Psychological Autonomy VS Psychological Control; and (3) Firm Control VS Lax Control. Those dimensions are divided into 18 subscales. These six subscales consist of 8 items/subscale: Acceptance, Acceptance of Individuation, Positive Involvement, Rejection, Hostile Detachment, Hostile Control. Whereas, twelve subscales consist of 5 items/subscale: Child Centeredness, Possessiveness, Control, Enforcement, Intrusiveness, Control Through Guilt, Inconsistent Discipline, Non enforcement, Lax Discipline, Instilling Persistence Anxiety, Withdrawal of Relations and Extreme Autonomy (Schuldermann & Schuldermann, 1988). Items were rated using a three-point scale (0= not at all true, 1 = somewhat true, 2 = very true). Cronbach's alpha ranged from .85 to .90 (Chaowakeeratiphong, 1992). The CRPBI-108 has some subscales that could be considered as similar to the construct of the subscales in the PR (Cohen et al., 1977). These are Control through Guilt (5 items), Inconsistent Discipline (5 items), Hostile Detachment (8 items), Positive Involvement (8 items), and Child Centeredness (5 items).



It was found that some literature used the phrase "parenting behavior" interchangeably with "parenting style" or "parental style" (Cohen et al., 1977; Rhucharoenpornpanich et al., 2010; Tapanya, 2011). Generally, the selection of instruments is based on the purpose of the research.

In this study, the Parent's Report (PR, Cohen et al., 1977) is used to assess the parenting behavior variable. This is because the scale showed consistent attributes with many other instruments and it has been used to reflect parenting behavior. In addition, the items were developed based on several reputable studies (Cohen et al., 1977). The questionnaire also has acceptable psychometric properties for use with adolescents who have the co-occurrence of disruptive behavior and depression.

**5.3.2.3 The relationship between parenting behavior, disruptive behavior, and depression**

All members of a family are in the process of development throughout its lifetime especially the parents. Parenting behavior that is suitable at one time in a child's development may be unsuitable at another time. Research has found that parenting behavior is one of the factors, which influences disruptive behavior and depression in adolescents. For example, Drabick et al. (2006) found that parenting behavior predicted disruptive behavior and depression. In addition, Chen & Simon-Morton (2009) studied 2,453 adolescents. They found that parenting behavior was associated with disruptive behavior and depression. Social competence was found to be negatively associated with disruptive behavior and depression.

Ezpeleta et al. (2005) analyzed psychosocial contextual risk factors in three groups, co-occurrence of disruptive behavior and depression, pure depression, and pure disruptive behavior groups based on contextual factors. There were marked

differences between the co-occurrence group and the pure depression group and very few differences between the co-occurrence group and the pure CD/ODD group. Their findings revealed that parenting behavior was associated with disruptive behavior and depression in adolescents. Parenting behavior consisted of parental monitoring, discipline practices, rejection, overprotecting, and emotional warmth. Parental monitoring in the co-occurrence group was less supervised than in the pure depression group. Co-occurrence adolescents were exposed to more discipline from their parents than pure depression adolescents in general and physical punishment in particular.

In summary, the above research shows that parenting behavior is significantly associated with disruptive behavior and depression in adolescents.

**5.3.3 Family environment**

**5.3.3.1 Definition of family environment**

From the Merriam-Webster.com dictionary (2013b; 2013c), the family is a group of individuals living under one roof and usually under one head (household). The environment is (i) the circumstances, objects or conditions by which one is surrounded or (ii) the aggregate of social and cultural conditions that influences the life of an individual. Therefore, based on the dictionary definition, the family environment could be considered as an aggregate of social and cultural conditions that influences the life of individuals living under one roof.

According to Whall (1986), “a self-identified group of two or more individuals whose association is characterized by special terms, who may or may not be related by blood lines or law, but who function in such a way that they consider themselves to be family”. This definition of a family concurs with Friedman et al. (2003) who define the family as “two or more persons who are joined together by bonds of sharing and emotional closeness and who identify themselves as being part of the family”.

From a nursing perspective, the earliest Standards of Psychiatric-Mental Health Nursing (American Nurses’ Association, 1973) mention the family. The 1982 edition of these standards was more developed in terms of family focus. Family interventions that focus on the family system promote change toward adaptation in family system (Whall & Fawcett, 1991). According to King, a nursing theorist, the family is “a social system that is seen as a group of interacting individuals” (King, 1983).



In this study, family is defined as the adolescent’s family that is composed of parent(s), the adolescent and others who identify themselves as being part of the adolescent’s family.

The family context and the family system can be considered in terms of the family environment. In child and adolescent mental health nursing, the family is the most important context or system in which a child develops (Gupta & Frake, 2009). The family context is a social context. The family context is central to any

understanding of a young person's world and any difficulties they may be experiencing (Gupta & Frake, 2009). Whereas, the family system is defined as a primary social system in which members across the life span must be nurtured, socialized, humanized and supported until adulthood (Fawcett, 1993).

From environmental psychology, the family environment is one of nine human/social environments (Moos, 1973). Psychology and behavioral science research has raised several concerns about individuals and their environment. Theoretical approaches were found that fully conceptualized a broad range of environmental variables and systematically related them. Moos and his co-workers (e.g. Moos & Insel, 1973; Trickett & Moos, 1973) developed conceptualizations of human environments and scales to measure the properties of nine different types of human/social environments (e.g. psychiatric wards, high school classroom, and family environment).

Moos (1973) conceptualized the following three basic types of dimensions, which characterize and discriminate among different subunits within each of these nine environments: (1) Relationship dimensions assess the extent to which individuals are involved in the environment and the extent to which they support and help each other. The basic dimensions are involvement, support and expressiveness. (2) Personal development dimensions assess the basic directions along which personal development and self-enhancement tend to occur in a particular environment. The exact nature of the dimensions varies among the nine environments studied,

depending on the purposes. (3) System maintenance and system change dimensions. The basic dimensions are order, organization, clarity and control.

The relationship dimension is the quality of family relationships that are perceived by a person in the family (Moos, 2009). The relationship dimension consists of three subscales: cohesion, expressiveness and conflict. Cohesion is the degree to which family members are helpful and supportive of each other. Expressiveness is the extent to which family members are encouraged to act openly and express their feelings directly. Conflict is the extent to which the open expression of anger and conflict among family members occurs. Using a procedure that considers relationship characteristics, the developers identified two types of the relationship-oriented family: the support-oriented family and the conflict-oriented family. The support-oriented family environment has more cohesion and expressiveness than conflict.

Ezpeleta et al. (2005) refer to the family environment as the quality of family relationships between the child/adolescent and family members: father, mother and siblings.

Drabick et al. (2006) define the family environment as the quality of family relationships. The family environment consists of three dimensions: cohesion, conflict and marital satisfaction. The cohesion and conflict attributes are similar to the above definitions. Cohesion is the degree to which family members are helpful and supportive of each other. Conflict is the extent to which the open expression of

anger and conflict among family members occurs. Marital satisfaction is the extent of the mother's satisfaction with their current marriage or relationship.

In this study, family environment is studied in the relationship dimension because research has shown that the quality of relationships in the family environment is an important factor, which influences the co-occurrence of disruptive behavior and depression among adolescents. Therefore, the family environment is defined as the extent to which adolescent's perception on the quality of family relationships in his/her family. Family environment consists of three dimensions: cohesion, expressiveness and conflict.

**5.3.3.2 Measurement of family environment**

The family environment has been assessed with self-report questionnaires completed by parents and/or adolescents (Park, Garber, Ciesla, & Ellis, 2008).

Firstly, the Family Environment Scale, many studies have used the Family Environment Scale (FES, Moos & Moos, 1986; Moos, 2009). The FES was developed based on conceptualizations of the human environment (Moos, 1973). The Family Environment Scale consists of ten subscales that measure three underlying dimensions: Family Relationship, Personal Growth, System Maintenance and Change. The scale has been used to evaluate participants from age eleven to adult. The Family Relationship dimension (or Relationship dimension) was used to assess family environment in several studies on the co-occurrence of disruptive behavior and depression in adolescents, for example, Biederman et al. (2008). The FES-Relationship

dimension (Moos, 2009) includes measurements of three subscales (9 items/ subscale): Cohesion, Expressiveness, and Conflict. The FES- Relationship dimension has good internal consistency reliability (Moos & Moos, 2009; North et al., 2008) and adequate test-retest reliabilities and good construct validity (i.e., Moos et al., 1998a; 1998b; Moos & Moos, 1994; 2009).

Other two instruments, which have been used to measure family environment (Segrin et al., 2012) are the revised Family Communication Patterns and the Family Satisfaction Scale. The revised Family Communication Patterns (Richie & Fitzpatrick, 1990) is a 15-item scale, which measures the extent to which a family engages in discussion and promotes the free and open expression of ideas and feelings. The Family Satisfaction Scale (Olson & Wilson, 1982) is a 10-item scale that asks participants to rate the degree to which he/she is satisfied with various aspects of the family's communication. The internal consistency reliability of the revised Family Communication Patterns and the Family Satisfaction Scale, Cronbach's alpha coefficient were .93 to .96 for youth (17-23 years old).



In this study, the FES-Relationship dimension was used to assess the family environment because the scale has been widely used to measure the family environment in adolescent participants and is appropriate for the population of interest to this study, 13 to 17 years old. In addition, the scale has an acceptable to good level of psychometric properties and it covers the attributes of family

environment that are associated with the co-occurrence of disruptive behavior and depression in adolescents.

**5.3.3.3 The relationship between family environment, disruptive behavior, and depression**

Usually, adolescents spend a lot of their time with family. Research has revealed that the family environment is one factor, which influences the co-occurrence of disruptive behavior and depression (Drabick et al., 2006; Ezpeleta et al., 2005; Sourander & Helstelä, 2005). Ezpeleta et al. (2005) found that there were marked differences between the co-occurrence of disruptive behavior and the depression group (COM) and the pure depression group. The family environment of the COM and MDD/DD group was significantly different. The results revealed that the COM group experienced poorer relationships with their mothers, fathers, siblings and did not feel supported at home (OR = 3.03, 95% CI 1.38-6.65, $p < .05$; OR = 0.22, 95% CI 0.08-0.62, $p < .05$; OR = 3.25, 95% CI 1.52 – 6.95, $p < .05$; and OR = 6.27, 95% CI 1.34-29.4, $p < .05$ respectively). In addition, the adolescents in the COM group perceived more conflict between their parents than the pure depression group. Drabick et al. (2006) agreed that the family environment was a predictor of disruptive behavior and depression, specifically high family conflict and lack of family cohesion. These findings concur with the other studies (Sourander & Helstelä, 2005; Pressman et al., 2006).

In summary, the family environment has been significantly associated with disruptive behavior and depression among adolescents.

### 5.3.4 Deviant peer affiliation

#### 5.3.4.1 Definition of deviant peer affiliation

There were found few different attributes in definitions of deviant peer affiliation. Literature shows that deviant peer affiliation is a term, which is interchangeable with problem peers, deviant peers, association with deviant peers and problem peer association (Barrera et al., 2001; Chen & Simon-Morton, 2009; Germán, Gonzales, & Dumka, 2009; Metzger, Dawes, Mermelstein, & Wakschlag, 2011).

Leary (2010, p. 865), “affiliation is the act of associating or interacting with one or more other people”. Many theorists have suggested that being with or interacting with other people is a fundamental social behavior (Bakan, 1966; Hogan & Robert, 2000).

Chen & Simons-Morton (2009) refer to deviant peer affiliation as an adolescent who associates with close friends that participate in problem behavior such as bullying, being disrespectful to teachers, fighting, cheating and lying to parents. In another study, deviant peer affiliation refers to adolescents who have close friends with problem behavior who use drugs and/or drink alcohol and parents who are dissatisfied with the child’s friends (Ezpeleta et al., 2005).

Germán et al. (2009) refer to deviant peer affiliation as occurring when an adolescent associates with peers who have engaged in deviant behavior/activity

during the past month. Whereas, Metzger et al. (2011) define deviant peer affiliation (problem peer association/problem peers) by the number of the friends that an adolescent has to go to in order to discuss problems with or get advice from, where those friends engage in problem behavior at school.

In summary, deviant peer affiliation has been defined as adolescents associating with close friends who have deviant/problem behavior. In this study, deviant peer affiliation is defined as an adolescent associating with close friends who have deviant/problem behavior.

**5.3.4.2 Measurement of deviant peer affiliation**

The measurement of deviant peer affiliation is dependent upon the definition of peer deviant/problem behavior. Deviant peer affiliation (problem peer affiliation) has been assessed by asking how many of the respondent's five closest friends participated in deviant behavior such as fighting and cheating (Chen & Simon-Morton, 2009). The average score was used to indicate deviant peer affiliation. In the study, the researchers excluded those friends who were engaged only in smoking and drinking but did not have other problem behavior. Cronbach's alpha was .81 across five waves.

In another study (Germán et al., 2009), deviant peer affiliation was assessed using a questionnaire developed by Barrera et al. (2001). The deviant peer affiliation questionnaire was developed from several scales previously used in research with adolescents (Dishion et al., 1991; Mason et al., 1995). Adolescents were

asked to indicate how many of his/her five close friends had engaged in deviant behavior (Barrera et al., 2001). The responses were measured on a 6-point scale ranging from 0 to 5 (e.g., 0 = none of the close friends engaged in the deviant behavior, and 5 = five close friends engaged in the deviant behavior). The scale had a coefficient alpha of .90 (Germán et al., 2009).

Metzger et al. (2011) assessed deviant peer affiliation (or problem peer association/problem peers) by asking adolescents to complete 16-items of a questionnaire to measure their peer behavior (Mermelstein et al., 1986). Adolescents were asked to think about the friends and people they went to in order to discuss problems or get advice, and then count how many of these people engaged in problem and non-problem activities. Responses were measured on a 6-point scale ranging from 0 (0 people) to 5 (5 or more people). Principal component analysis derived two factors, one containing problem behavior and the second containing non-problem behavior. Only the problem peer support network was used in the study analyses, (alpha were .82 to .85).



In summary, in this study, deviant peer affiliation is assessed using the Deviant Peer Affiliation Questionnaire that was developed by Barrera et al. (2001). The questionnaire consists of nine items that ask the adolescent about the number of his/her five closest friends who had engaged in deviant behavior. Responses are measured on a 6-point scale ranging from 0 to 5 (e.g., 0 = no close friends engaged in deviant behavior, 1 = one close friend engaged in the deviant behavior, 2 = two

close friends engaged in deviant behavior, 3 = three close friends engaged in deviant behavior, 4 = four close friends engaged in deviant behavior and 5 = five close friends engaged in the deviant behavior). Average scores are calculated. Higher scores indicate more of adolescent's close friends have deviant/problem behavior.

**5.3.4.3 The relationship between deviant peer affiliation, disruptive behavior, and depression**

Adolescents spend huge chunks of time with peers, more than in middle and late childhood. In addition, based on basic human needs, love and belonging are important needs for any human (Eby & Brown, 2005), including adolescents. From a developmental perspective, adolescents would like to be a member of at least one peer group. If good/normal friends do not accept an adolescent, he/she will develop a relationship with other peers such as deviant peers who accept him/her. His/her sense of belonging may be slightly fulfilled; however, the relationship may not fulfill his/her satisfaction and security needs. This is because deviant peers usually have problems in their social environment. Deviant peer affiliation may lead to disruptive behavior and depression (Patterson et al., 1989). Regarding deviant behavior, others usually reject the adolescent and his/her deviant peers around them. In addition, while the adolescent is a member of a deviant peer group, the parents may be unsatisfied with the child's friends, which may result in the adolescent feeling anxious and insecure. Adolescent's self- response to these negative experiences may lead to depression. Acceptance from a deviant peer group may lead the adolescent

to engage in repeated disruptive behavior. Research has indicated that adolescents with disruptive behavior and depression have few good friends, engage in deviant peer association and parents are unsatisfied with the child's friends (Ezpeleta et al., 2005). Likewise, research has demonstrated that deviant peer affiliation is significantly associated with disruptive behavior and depression in adolescents (Chen & Simon-Morton, 2009).

In summary, the above research considers deviant peer affiliation to be positively associated with disruptive behavior and depression in adolescents. Frequent deviant peer affiliation has been associated with frequent occurrences of disruptive behavior and depression. Therefore, deviant peer affiliation is presumed to have a positive direct effect on disruptive behavior and depression among adolescents.

**5.3.5 Social competence**

**5.3.5.1 Definition of social competence**

In general, the construct of social competence refers broadly to effectiveness in interaction (Rose- Krasnor, 1997).

In some earlier work, social competence was defined broadly, to reflect individuals' "personal and social maturity" in multiple domains (Zigler & Phillips, 1961). According to Raver & Zigler (1997), "we often defined the capability to

feel positively about oneself and to fit in well within a network of positive relationships with family and peers as “social competence”.

Another definition of social competence defines it as the perception of one’s ability to engage in effective social interaction (Anderson & Messick, 1974).

Furthermore, the European Commission has identified social competence as a key benchmark indicator targeted to improve prosperity and well-being in its member states (EU, 2005). Social competence has also been broadly defined as “the capabilities enabling individuals to live together in the world”.

Burt, Obradovic, Long and Masten (2008) studied associations between internalizing, externalizing and social competence. The definition of social competence in the study was guided from a developmental task perspective (Masten et al., 2006; Pulkkinen & Caspi, 2002; Roisman et al., 2004; Sroufe, 1979). Social competence has been defined as how well an individual functions in relation to other people, particularly with respect to getting along with others and forming close relationships (Burt et al., 2008). Operational definitions of social competence have reflected developmental changes in the nature of peer relationships. For example, indicators of social competence in childhood (T1) emphasized acceptance by school classmates and having friends. Whereas, in adolescence (T2), social competence focused on close relationships and peer acceptance.

In summary, in this study, social competence is defined as an adolescent's ability to engage in well social relations to other people, particularly with respect to getting along with others and forming close relationships

**5.3.5.2 Measurement of deviant peer affiliation**

Among researchers, there has not been a common consensus on how to measure social competence. Methods ranging from self-report, direct behavioral observations (in natural situations or under experimental conditions) to sociometric approaches have been used. The Prosocial subscales of Strengths and Difficulties Questionnaire (SDQ, Goodman, 2001) is an example of a way in which to conceptualize and operationalize social competence (Schoon, 2009).

Burt et al. (2008) assessed social competence in adolescents using ratings based on a set of competence scales: the Status Questionnaires (SQs) completed by parents and adolescent (target) participants and the Competence Rating Scale (CRS) instrument adapted from the preliminary version of the Self-Perception Scale for Adolescents (Harter, 1982) completed by parents. The SQs rated participants' positive/active social life based on the adolescent's or parent's perspective, using a 5-point Likert scale. Parent SQ rating was 1-item/questionnaire and the reliability coefficient was .84. Target SQ rating was also 1-item/questionnaire and the reliability coefficient was .84. The CRS assessed close friendship/relationships and social/peer acceptance (e.g. popular with others, has a close friend to share with). The CRS reliability coefficient was .85.

Chen & Simons-Morton (2009) assessed social competence with items developed consistent with the Harter's (1982) conceptualization. Response choices allowed participants to indicate if they perceived items to be much harder, a little harder, a little easier or much easier for them compared to others in their grade/peers. Higher scores indicated better levels of social competence. Cronbach's alpha .79 to .80 (Chen & Simons-Morton, 2009).

Harter (1982) positioned the social competence subscale as one of four subscales of the Perceived Competence Scale. Other subscales were cognitive competence, physical competence and general self-worth. The social competence subscale (named social acceptance subscale in a later version, Harter, 1985) has been used to assess perceptions of social competence in several studies (Lee, Hankin, & Mermelstein, 2010). The reliability of the social competence subscale ranged from .75 to .85 (Harter, 1982; 1985; Lee et al., 2010; Tran & Lee, 2011) in children and adolescents. The social competence subscale examined the convergent and concurrent validities as a measure of perceived social competence (Harter, 1999).



In this study, social competence is assessed using the Social Competence Questionnaire (SCQ) that consists of items based on the social competence subscale of the Perceived Competence Scale (Harter, 1982; 1985) because the social competence subscale has been developed to assess social competence and has acceptable to good psychometric properties. Additionally, the scale has been used

to assess this variable in several other studies of adolescents with the co-occurrence of disruptive behavior and depression. This construct is congruent with previous research such as Chen & Simon-Morton (2009) that focuses on adolescent self-perception. In this study, the response format was modified to a simpler format that is easier for adolescents with disruptive behavior to complete.

**5.3.5.3 The relationship between social competence, disruptive behavior, and depression**

Social competence outside the family is also relevant to adolescent mental health problems. During adolescence, many changes occur such as body image, increased responsibility and decreased dependency on parents. Regarding stages of psychosocial development, adolescents should achieve major developmental tasks: developing a sense of self-identity, learning to form satisfactory relationships with persons of the same gender, initiating feelings of affection for another person and with persons of the opposite gender.



**Summary**

The review of the literature on co-occurrence of disruptive behavior and depression in adolescents has shown that important factors influence disruptive behavior and depression in adolescents (e.g., Drabick et al., 2006; Ezpeleta et al., 2005; Sourander & Helstelä, 2005). These factors are childhood ODD (Burke et al., 2005; 2010; Diamantopoulou, 2010), parenting behavior (Chen & Simon-Morton, 2009;

Drabick et al., 2006; Ezpeleta et al., 2005), family environment (Drabick et al., 2006; Ezpeleta et al., 2005; Sourander & Helstelä, 2005; Subbarao et al., 2008), deviant peer affiliation (Chen & Simon-Morton, 2009; Ezpeleta et al., 2005) and social competence (Burt et al., 2008; Chen & Simon-Morton, 2009). The relationships among those common risk factors influencing on co-occurrence of disruptive behavior and depression could be summarized in the following eight statements: Disruptive behavior is presumed to have a positive association with depression. Childhood ODD is presumed to have positive direct effect on disruptive behavior and depression. Childhood ODD is presumed to have an indirect effect on disruptive behavior and depression via parenting behavior. Parenting behavior is presumed to have a negative direct effect on disruptive behavior and depression. Family environment is presumed to have negative direct effect on disruptive behavior and depression. Deviant peer affiliation is presumed to have positive direct effect on disruptive behavior and depression. Deviant peer affiliation is presumed to have an indirect effect on disruptive behavior and depression via social competence. Social competence is presumed to have a negative direct effect on disruptive behavior and depression.



The results from previous research could provide information only factors influencing co-occurrence of disruptive behavior and depression among adolescents in other countries. However, there was no research found, which investigated the relationship between disruptive behavior and depression, and the relationships among factors influencing both disruptive behavior and depression in Thai

adolescents. Existing knowledge from other countries may be appropriate or inappropriate to apply in Thai context. It is essential for nurses to understand the effects of cultural influences on human behaviors. Every country may have some culture different from others. Therefore, nursing research on the co-occurrence of disruptive behavior and depression among adolescents within a Thai context is needed to fill the gap in the existing body of knowledge. In addition, a better understanding of the factors, which contribute to the co-occurrence of disruptive behavior and depression among adolescents within a Thai context, will result in more appropriate and relevant nursing care.

# CHAPTER III

# Methodology

This chapter describes the methodology used in the present study. In this chapter, the research design, population and sample, instrumentation, protection of the rights of human subjects, pilot study, data collection, and data analysis are detailed.

## Research design

A cross-sectional, descriptive correlational design was employed to examine the relationship between disruptive behavior and depression and to examine the relationships among variables and disruptive behavior and depression. The potential factors were childhood ODD, parenting behaviors, family environment, deviant peer affiliation, social competence, disruptive behavior, and depression among Thai adolescents.

## Population and sample

### Population

The target population are adolescents with disruptive behavior (including attention deficit hyperactivity disorder/ oppositional defiant disorder/ conduct disorder) and depression, 13-17 years old.

**Sample**

The participants were adolescents with disruptive behavior who visited at Child and Adolescent Psychiatric Outpatient Departments/Services of seven hospitals/institutes. Participants were selected based on the following inclusion criteria: adolescent aged between 13 and 17 years old, have CES-D score equal/above 16, able to communicate in Thai, willing to participate in the study, have to live with parents, parent allow him/her to participate in the study, and one of parent willing to give information about his/her parenting behavior and adolescent's behaviors.

**Sample size**

"The role of sample size is to produce more information and greater stability" (Hair et al., 2010: p. 662). This study sample size requirement is estimated from these follows. Hair et al. (2010) recommended for a sound basic for estimate sample size is 200 and suggested that the model complex and more construct is required more parameters to be estimated. Sample size in the range of 100 to 400 are suggested subject to some considerations. The adequate sample size for path analysis could be 10 to 20 respondents for each estimated parameter (Hair et al., 1998; Kline, 1998). In this study, the hypothesized model contained 21 parameters, if parameters are the number of relationships between variables (= 14) and the number of error terms for seven variables (= 7). Thus, a sample size of 210 was the minimum requirement to match the complexity to the path model. The addition of

10% of minimum requirement is employed to cover the attrition of the sample selected. Based on this method of estimation, a sample of 230 cases is required for this study.

Two hundred and seventy- four potential participants were informed and asked to complete questionnaire. One hundred and twenty- three adolescents with disruptive behavior who have the Center for Epidemiologic Studies-Depression Scale (CES-D) scores equal/above 16, were considered as having depression and be selected into the study.

**Sampling method**

Multi-stage random sampling procedure was used for a probability sample of Thai adolescents. The following steps were followed to select participants.

1) There are four regions in Thailand: Central, Northern, North-Eastern, and Southern regions (Regional Data Exchange System (RDES), 2008). The criteria for the probability hospitals/institutes are: (i) public hospital/institute; (ii) has Child and Adolescent Psychiatric Outpatient Department/Service; (iii) has adolescents with disruptive behaviors (including ADHD/ODD/CD) visiting.

2) Based on Child and Adolescent Psychiatric Society of Thailand (2007), Central regions have 24 hospitals/ institutes that have Child and Adolescent Psychiatric Outpatient Department/Service. Whereas, there are 6, 7, and 6 hospitals/institutes that meet the criteria in Northern, North-Eastern, and Southern regions, respectively.

3) Simple random sampling was used to select the seven hospitals/institutes from four regions by using ratio 6:1. Four hospitals/institutes were selected from 24 hospitals/institutes from the Central region, one from six hospitals/institutes from the Northern region, one from seven hospitals/institutes from the Northeastern region and one from six hospitals/institutes in Southern region. As a result, seven probability hospitals/institutes are the King Chulalongkorn Memorial Hospital, the Phramongkutklao Hospital, the Child and Adolescent Mental Health Rajanakaridra Institute, the Tulakarn Chalermprakiat Hospital, the Suanprung Hospital, the Nakhon Ratchasima Rajanagarindra Psychiatric Hospital, and the Suansaranrom Psychiatric Hospital.

4) The participants were recruited from Child and Adolescent Psychiatric Outpatient Departments/Services from seven hospitals/institutes. The list of adolescents with disruptive behavior was obtained from psychiatrists/nurses at the Child and Adolescent Psychiatric Outpatient Departments/Services. Participants were selected based on the following inclusion criteria: adolescent aged between 13 and 17 years old, able to communicate in Thai, willing to participate in the study, living with parents, parents allow him/her to participate in the study and parents are willing to provide information about their parenting behavior and the adolescent's behavior. The sample was obtained by systematic random sampling from the list.

Two hundred seventy four adolescents with disruptive behavior were informed assent and their parents were informed consent by the researcher. If they complied to participate in this study, they would complete the questionnaires. The adolescents with disruptive behavior who have the CES-D scores equal/above 16 were considered as having depression and selected into the study. One hundred twenty-three participants were selected into this study. Details are presented in Figure 3.

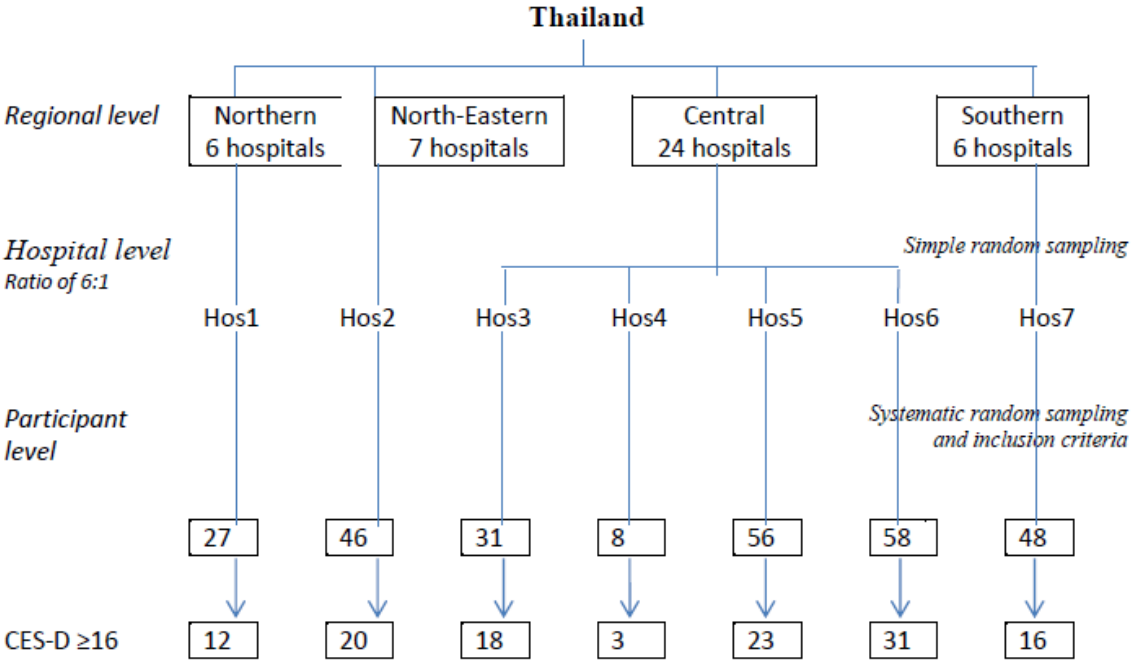



**Figure 3 The sampling selection with multi-stage random sampling**

**Research instruments**

The following section describes the instruments applied in this study that includes description of instrument, scoring, and psychometric properties. The research instruments consisted of two parts, part one was for adolescents and part two was for parents to complete. Details are presented as follows:

**1. The adolescents' questionnaire** consists of demographic questionnaire, the Center for Epidemiologic Studies-Depression Scale (CES-D), the Social Competence Questionnaire, the Family Environment Scale-Relationship dimension, and the Deviant Peer Affiliation Questionnaire. Details are presented as these follows.

**1.1 The demographic questionnaire.**

The adolescent demographic questionnaire was developed by the researcher. This questionnaire was asked about adolescent's gender, age, education, the last grade point average, living with whom, and family members.

**1.2 Center for Epidemiologic Studies-Depression Scale (CES-D).**



Depression was assessed using the CES-D. The original CES-D has been widely used and shown validity of the instrument among studied across cultures (Radloff, 1991). For this study, depression is assessed using the Thai version of the Center for Epidemiologic Studies-Depression Scale (CES-D, Radloff, 1977) translated by Trangkasombat et al. (1997). The CES-D has 20-items which represent the major components of depression. Components include depressed mood, feelings of

worthlessness, feeling of hopelessness, loss of appetite, poor concentration, and sleep disturbance (Radloff, 1977).

***Scoring and interpretation of scores***. Each response was scored from zero to three on a scale of frequency of occurrence of the symptoms. The response options are none of the time, a little of the time, most of the time, and all of the time. Negative items will be gave a score within 4 points ranged from 0 to 3 (0 = none of the time, 1 = a little of the time, 2 = most of the time, and 3 = all of the time). Positive items will be gave a score within 4 points ranged from 3 to 0 (3 = none of the time, 2 = a little of the time, 1 = most of the time, and 0 = all of the time). CES-D summated scores range from 0 to 60. According to Radloff (1977), higher scores indicated greater depressive symptom severity. A score at or above 16 are indicative of clinically significant depression symptomatology (Radloff, 1991). Moreover, a cut-off score of 16 for the CES-D has been used among research in the area of depressive symptoms in adolescents (Fergusson, Horwood, &Lynskey, 1995), included Thai adolescents (Vongsirimas et al., 2009). This study uses CES-D summated scores where higher scores indicate more severe depressive symptoms.

***Validity.*** The CES-D Thai version tested psychometric properties in male adolescent participants, 15-18 years old, and psychiatrists who were blind to the results evaluated them. The Thai version showed sensitivity 72%, specificity 85% and accuracy 82% (Trangkasombat et al., 1997). In this study, CES-D Thai version was confirmed content validity by seven experts. One expert is nursing instructor who has

experience in instrument development and adolescent mental health field. Two experts are the Advance Practice Nurses (APNs) in child mental health and psychiatric nursing. Two experts are child and adolescent psychiatrists. One expert is child and adolescent psychiatrist who has experience in instrument development and research about disruptive behavior in children and adolescents. One expert is a psychiatrist and medical instructor who has experience in instrument development. These experts were asked to evaluate content validity of instruments by rate the level of relevancy between items and the definition of the concepts as represented. The responses include a rating of 1= not relevant, 2= somewhat relevant, 3= quite relevant, 4= highly relevant, and clarify the items using open suggestions. The acceptable score are equally or higher .80 (Polit et al, 2007). In this study, the results of content validity index, the Scale-CVI of the CES-D was .97. The item-CVI were .86 – 1.00.

The construct validity was tested by confirmatory factor analysis in 123 adolescents with disruptive behavior and depression. The results indicated that the measurement model of depression fit the data in acceptable level. The results are presented in Table 2



**Table 2 Confirmatory factor analysis of the measurement model of depression**

| Construct (number of indicators) | Standardized Factor Loading | t-value | SE | $R^2$ |
|---|---|---|---|---|
| Depression (20) | -.26-.54 | -3.00-6.88 | .06-.09 | .00-.40 |
| ($\chi^2$ = 182.03, df =154, $\chi^2$/df =1.18, p-value =.061, RMSEA = .039, GFI =0.87, AGFI =.82) | | | | |

***Reliability.*** The scale demonstrated high internal consistency with Cronbach's alpha ranged from .84 to .90 (Radloff, 1977; 1991). The CES-D had

acceptable reliability when it was used with Thai adolescents, alpha were .76 to .88 (Charoensuk, 2007; Vongsirimas et al., 2009; Trangkasombat et al., 1997). In this study, Cronbach's alpha is .76 in pilot study (n = 30), .84 (n = 274), and .62 (n = 123).

**1.3 Social Competence Questionnaire**.

Social competence is assessed using the Social Competence Questionnaire (SCQ) that consists of the items based on social competence subscale of the Perceived Competence Scale (Harter, 1982; 1985). Harter (1982) positioned the social competence subscale as one of four subscales of the Perceived Competence Scale. Other subscales were cognitive competence, physical competence and general self-worth. The social competence subscale (named social acceptance subscale in a later version, Harter, 1985) has been used to assess perceptions of social competence in several studies (Lee, Hankin, & Mermelstein, 2010). For this research, social competence is assessed using the Social Competence Questionnaire (SCQ) that consists of four items based on the Social Competence subscale of the Perceived Competence Scale (Harter, 1982; 1985) translated into Thai by the researcher. Detail of translation process was presented in the translation procedure for the instruments part. The response format was modified to a simpler format that is easier for adolescents with disruptive behavior to complete.

***Scoring and interpretation of scores.*** The participant was asked to choose one answer for each item. The participant was asked to decide whether that descriptor is "really not true" "sort of not true", "sort of true", or 'really true" for

him/her. Items keyed positively present the more competent or adequate self-description as the statement (scoring 1 to 4 for “really not true” to  or ‘really true”), whereas items keyed negatively present the less competent or adequate self-description(scoring 4 for “really not true” to 1 for ‘really true”). The summate scores from all items was used to represent the social competence. The possible total scores ranged from 0 – 16. Higher summated scores indicate higher social competence.

***Validity.*** The social competence subscale examined the convergent and concurrent validities as a measure of perceived social competence (Harter, 1999). For this study, the social competence questionnaire was confirmed content validity by seven experts. One expert is nursing instructor who has experience in instrument development and adolescent mental health field. Two experts are the Advance Practice Nurses (APNs) in child mental health and psychiatric nursing. Two experts are child and adolescent psychiatrists. One expert is child and adolescent psychiatrist who has experience in instrument development and research about disruptive behavior in children and adolescents. One expert is a psychiatrist and medical instructor who has experience in  instrument development. These experts were asked to evaluate content validity of instruments by rate the level of relevancy between items and the definition of the concepts as represented. The responses include a rating of 1= not relevant, 2= somewhat relevant, 3= quite relevant, 4= highly relevant, and clarify the items using open suggestions. The acceptable score are equally or higher .80 (Polit et

al, 2007). In this study, the results of content validity index, the Scale-CVI of the social competence questionnaire was .98. The item-CVI were .86 – 1.00.

The construct validity was tested by confirmatory factor analysis in 123 adolescents with disruptive behavior and depression. The results indicated that the measurement model of social competence fit the data well. The results are presented in Table 3.

**Table 3 Confirmatory factor analysis of the measurement model of social competence**

| Construct (number of indicators) | Standardized Factor Loading | t-value | SE | $R^2$ |
|---|---|---|---|---|
| Social competence (4) | .53-.68 | 6.00-8.41 | .08-.09 | .30-.62 |
| ($\chi^2$ = 2.06, df = 1, $\chi^2$/df = 2.06, p-value = .151, RMSEA = .093, GFI = 0.99, AGFI = .92) | | | | |

***Nate.*** $\chi^2$ = Chi-square**;** df = degree of freedom**;** RMSEA = Root Mean Square Error of Approximation**;** GFI = Goodness of Fit Index; AGFI = Adjust Goodness of Fit Index

***Reliability.*** The reliability of the social competence subscale ranged from .75 to .85 (Harter, 1982; 1985; Lee et al., 2010; Tran & Lee, 2011) in children and adolescents. The original social competence subscale have six items. From pilot study, the reliability of social competence questionnaire was .78 (n=30) if items 3 and item 5 deleted. Therefore, the social competence questionnaire (four items) was used to assess adolescent's perception of his/her own ability to engage in well social relations to other people in this study. The reliability of social competence questionnaire was .75 (n = 123).

**1.4 Family Environment Scale.**

Family environment is assessed using the Family environment Scale - Relationship dimension (FES- Relationship dimension, Moos, 2009). Moos and his co-workers (Moos, 1973; Moos & Insel, 1973; Moos & Moos, 1974; 1986; 2009) have developed conceptualizations of human environments and scales to measure the human environments including the family environment scale. The FES scale was used in participants age eleven through adult. Only the Relationship dimension was used to assess family environment in several studies including the studies on co-occurrence of disruptive behavior and depression in adolescents (Biederman et al., 2008, Drabick et al., 2006). The FES- Relationship dimension (Moos, 2009) was translated into Thai by the researcher. Detail of translation process was presented in the translation procedure for the instruments part. The scale consists of 27 items that assess three subscales (9 items/ subscale): Cohesion, Expressiveness, and Conflict. Cohesion is the degree to which family members are helpful and supportive of each other. Expressiveness is the extent to which family members are encouraged to act openly and express their feelings directly. Conflict is the extent to which the openly expression of anger and conflict among family members provide for each other.

***Scoring and interpretation of scores.*** Each item requires a "yes" or "no" answer. The Conflict subscale score was reversed before summated with the Cohesion subscale score and the Expressiveness subscale score. The summated of

three subscales scores was used to represent the family environment in this study. FES- Relationship summated scores range from 0 to 27. Higher scores indicate higher quality of relationship, more support environment in the family

***Validity.*** The FES- Relationship dimension has good construct validity (i.e., Moos et al., 1998a; 1998b; Moos & Moos, 1994; Moos & Moos, 2009). For this study, the FES- Relationship dimension was confirmed content validity by seven experts. One expert is nursing instructor who has experience in instrument development and adolescent mental health field. Two experts are the Advance Practice Nurses (APNs) in child mental health and psychiatric nursing. Two experts are child and adolescent psychiatrists. One expert is child and adolescent psychiatrist who has experience in instrument development and research about disruptive behavior in children and adolescents. One expert is a psychiatrist and medical instructor who has experience in instrument development. These experts were asked to evaluate content validity of instruments by rate the level of relevancy between items and the definition of the concepts as represented. The responses include a rating of 1= not relevant, 2= somewhat relevant, 3= quite relevant, 4= highly relevant, and clarify the items using open suggestions. The acceptable score are equally or higher .80 (Polit et al, 2007). In this study, the results of content validity index, the Scale-CVI of the social competence questionnaire was .99. The item-CVI were .86 – 1.00.



The construct validity was tested by confirmatory factor analysis in 123 adolescents with disruptive behavior and depression. The results indicated that the

measurement model of family environment fit the data. The results are presented in Table 4.

**Table 4 Confirmatory factor analysis of the measurement model of family environment**

| Construct (number of indicators) | Standardized Factor Loading | t-value | SE | $R^2$ |
|---|---|---|---|---|
| Family environment (3) | .22-1.00 | 1.65-2.26 | .22-1.30 | .05-1.90 |
| ($\chi^2$ = 0.00, df = 0, p-value = 1.00, RMSEA = .000, GFI = 1.00, AGFI = 1.00) | | | | |

***Nate.*** $\chi^2$ = Chi-square**;** df = degree of freedom**;** RMSEA = Root Mean Square Error of Approximation**;** GFI = Goodness of Fit Index; AGFI = Adjust Goodness of Fit Index

***Reliability.*** The FES- Relationship dimension has good internal reliability (Conbach's alpha = .89) (Moos & Moos, 2009; North et al., 2008), adequate test-retest reliabilities (average .81). For this study, the reliabilities, Cronbach's Alpha of FES-Relationship were .72 (n = 30) and .73 (n =123). KR-20 were .72 (n = 30) and .73 (n =123).



**1.5 Deviant Peer Affiliation questionnaire.**

Deviant peer affiliation is assessed using the Deviant Peer Affiliation Questionnaire that developed by Barrera et al. (2001) and translated into Thai by the researcher. Detail of translation process was presented in the translation procedure for the instruments part. The deviant peer affiliation questionnaire was developed from several scales previously used in research with adolescents (Dishion et al., 1991;

Mason et al., 1995). The Deviant Peer Affiliation questionnaire consists of nine items that asked the adolescent about number of his/her five closest friends that having the problem behaviors.

***Scoring and interpretation of scores.*** Responses were measured on a 6-point scale ranging from 0 to 5 (0 = none of closest friends engaged in the deviant behavior, 1 = one of closest friends engaged in the deviant behavior, and 5 = five of closest friends engaged in the deviant behavior). Score was calculated from average scores. Higher scores indicate higher number of adolescent's closest friends having the problem behaviors.

***Validity.*** For this study, the Deviant Peer Affiliation questionnaire was confirmed content validity by seven experts. One expert is nursing instructor who has experience in instrument development and adolescent mental health field. Two experts are the Advance Practice Nurses (APNs) in child mental health and psychiatric nursing. Two experts are child and adolescent psychiatrists. One expert is child and adolescent psychiatrist who has experience in instrument development and research about disruptive behavior in children and adolescents. One expert is a psychiatrist and medical instructor who has experience in instrument development. These experts were asked to evaluate content validity of instruments by rate the level of relevancy between items and the definition of the concepts as represented. The responses include a rating of 1= not relevant, 2= somewhat relevant, 3= quite relevant, 4= highly relevant, and clarify the items using open suggestions. The acceptable score are

equally or higher .80 (Polit et al, 2007). In this study, the results of content validity index, the Scale-CVI of the social competence questionnaire was .97. The item-CVI were .86 – 1.00.

The construct validity was tested by confirmatory factor analysis in 123 adolescents with disruptive behavior and depression. The results indicated that the measurement model of deviant peer affiliation fit the data. The results are presented in Table 5.

**Table 5 Confirmatory factor analysis of the measurement model of deviant peer affiliation**

| Construct (number of indicators) | Standardized Factor Loading | t-value | SE | $R^2$ |
|---|---|---|---|---|
| Deviant peer affiliation (9) | .27-..79 | 2.87-9.59 | .10-.15 | .07-.63 |
| ($\chi^2$ = 35.16, df = 23, $\chi^2$/df = 1.53, p-value = .050, RMSEA = .066, GFI = 0.94, AGFI = .88) | | | | |

***Nate.*** $\chi^2$ = Chi-square**;** df = degree of freedom**;** RMSEA = Root Mean Square Error of Approximation**;** GFI = Goodness of Fit Index; AGFI = Adjust Goodness of Fit Index

***Reliabilty.*** The scale had a coefficient alpha as .84 to .90 (Barrera et al., 2001; Germán et al., 2009). In this study, the reliabilities, Cronbach's Alpha of Deviant Peer Affiliation Questionnaire was .89 (n = 30), and .82 (n = 123).

**2. The parents'questionnaire** consisted of a demographic questionnaire, the Childhood ODD questionnaire, the Child and Adolescent Disruptive Behavior Inventory (CADBI), and the Parent's Report questionnaire (PR). Details are presented as these follows.

**2.1 Demographic questionnaire.**

The demographic questionnaire was developed by the researcher. Parent demographic questionnaire was asked the parent about demographic data including parent's gender, age, education, marital status, parental psychopathological history, the relationship between the parent and the adolescent.

**2.2 Childhood ODD questionnaire.**

Childhood ODD is assessed using the Childhood ODD questionnaire that developed by the researcher. The parent was asked to rate adolescent's history of ODD symptoms during childhood. The childhood period is considered 6 to 8 years based on evidences from literature review. The questionnaire is an item asked the parent about adolescent's history of ODD symptoms during childhood.

***Scoring and interpretation of the scores***. The parent was asked to rate adolescent's history of ODD symptoms during childhood on a 5-point scale (0 = none of the time, 1 = a little of the time, 2 = some of the time, 3 = most of the time, 4 = all of the time). The score as 0 indicates that adolescent have not a history of ODD symptoms during childhood. The score as 1 to 4 indicate that adolescent have a history of ODD symptoms during childhood. Higher scores indicate more occurrence of ODD symptoms during childhood.

***Validity.*** For this study, the Childhood ODD questionnaire was confirmed content validity by seven experts. The Scale-CVI of the questionnaire was 1.00.

**2.3 Child and Adolescent Disruptive Behavior Inventory.**

Disruptive behavior is assessed using the Thai version of the Child and Adolescent Disruptive Behavior Inventory (CADBI, Burns et al., 2000; 2008; 2009). The CADBI has been developed to assess parent perception of the occurrence of the symptoms of oppositional defiant disorder (ODD), attention deficit hyperactivity disorder (ADHD) and conduct disorder (CD) based on DSM-IV (APA, 1994). The ADHD symptoms were separated into ADHD- Inattention (ADHD-IN) and ADHD-Hyperactive/Impulsivity (ADHD-HI) symptoms. In this study, the Thai version of CADBI consists of ODD, ADHD-HI, ADHD-IN, and CD symptom dimensions (8, 9, 9, and 11 items, respectively). The ODD, ADHD-HI, and ADHD-IN symptom dimensions were translated into Thai by Burns et al. (2008; 2009) through forward translation and backward translation (reported in Shipp, Burns, & Desmul, 2010). The CD symptom dimension (11 items) from CADBI (Burns et al., 2000) was translated into Thai by the researcher. Detail of translation process was presented in the translation procedure for the instruments part.



***Scoring and interpretation of the scores***. The parent were asked to rate each adolescent's symptom on an 8-point frequency of occurrence scale for the past one month (1= *never in the past month*, *2 = one to two times in the past month*, 3= three *to four times in the past month*, *4= two to six times per week*, *5 = one time per day*, *6 = two to five times per day*,7= six *to nine times per day*, and 8 = ten *or more times per day*). In this study, the summated score of each symptom's

dimension was calculated. The summated score of four symptom dimensions was used to represent the disruptive behavior. Higher CADBI scores indicate more occurrence of disruptive behavior.

***Validity.*** The Convergent and discriminant validity studied provided additional support for the construct validity of the CADBI (Burns et al., 2008; 2009). For this study, the CADBI was confirmed content validity by seven experts. One expert is nursing instructor who has experience in instrument development and adolescent mental health field. Two experts are the Advance Practice Nurses (APNs) in child mental health and psychiatric nursing. Two experts are child and adolescent psychiatrists. One expert is child and adolescent psychiatrist who has experience in instrument development and research about disruptive behavior in children and adolescents. One expert is a psychiatrist and medical instructor who has experience in disruptive behavior instrument development. These experts were asked to evaluate content validity of instruments by rate the level of relevancy between items and the definition of the concepts as represented. The responses include a rating of 1= not relevant, 2= somewhat relevant, 3= quite relevant, 4= highly relevant, and clarify the items using open suggestions. The acceptable score are equally or higher .80 (Polit et al, 2007). In this study, the results of content validity index, the Scale-CVI of the CADBI was 1.00. The item-CVI was 1.00.

The construct validity was tested by confirmatory factor analysis in 123 adolescents with disruptive behavior and depression. The results indicated that the

measurement model of disruptive behavior fit the data. The results are presented in Table 6.

**Table 6 Confirmatory factor analysis of the measurement model of disruptive behavior**

| Construct (number of indicators) | Standardized Factor Loading | t-value | SE | $R^2$ |
|---|---|---|---|---|
| Disruptive behavior (4) | .57-.87 | 6.52-11.58 | .52-1.16 | .32-.76 |

($\chi^2$ = 2.41, df = 2, $\chi^2$/df = 1.21, p-value = .299, RMSEA = .041, GFI = 0.99, AGFI = .95).

***Nate.*** $\chi^2$ = Chi-square**;** df = degree of freedom**;** RMSEA = Root Mean Square Error of Approximation**;** GFI = Goodness of Fit Index; AGFI = Adjust Goodness of Fit Index

***Reliability.*** The reliability, Cronbach's alpha were ranged from .72 to .93 (Burns et al., 2000; 2008; 2009; Gomez et al., 2003). One-month test–retest reliabilities were ranged from .84 to .92 (Burns et al., 2008). In this study, the reliability, Cronbach's Alpha of CADBI is .96 (n = 30 and n = 123).

**2.4 Parent's Report.**

The Parent's Report (PR, Cohen et al., 1977) was used to assess parenting behavior. The instrument was conceptualized and items were selected on the basis of the developers' studies and several previous studies (Becker, 1964; Baumrind, 1973; Schaefer & Bayley, 1963). For this study, the Parent's Report (PR, Cohen et al., 1977) was translated into Thai by the researcher. Detail of translation process was presented in the translation procedure for the instruments part. In this study, the PR

is an 18- items questionnaire that consists of, five dimensions: (i) respect for the adolescent autonomy (4 items), (ii) consistency (4 items), (iii) child-centeredness (4 items), (iv) control through guilt (2 items), (v) detachment (4 items). Respect for autonomy is the positive interaction that the parent interacts with the adolescent by respects for adolescent's needs and gives him/her a great deal of independence. Child-centeredness is the positive interaction that the parent interacts with the adolescent by concern and warmth to the adolescent. Consistency is the positive interaction that the parent interacts with the adolescent by commitment to and consistency with rules and procedures. Control through guilt is the negative interaction that the parent interacts with the adolescent by try to shape the adolescent's behavior by making adolescent feel guilty. Detachment is the negative interaction that the parent interacts with the adolescent by withdrawal from the adolescent, especially when the parent is angered by the adolescent.

***Scoring and interpretation of the scores***. Parent was asked to rate their behaviors on a 7-point scale (0= never, 1 = almost never, 2 = seldom, 3 = half the time, 4 = frequently, 5 = almost always, and 6 = always). In order to have all items in a factor scale consistent direction, some items must have scoring reversed before summated. The scores from the Control through Guilt and the Detachment subscales were reversed before summate scores. The summate scores was used to represent the parenting behavior. For this study, the possible range of summated scores were 0 to 108. Higher scores indicate higher positive parenting behaviors.

***Validity.*** The validity of the PR was tested by factor analysis (Cohen et al., 1977). Five dimensions consistent with the theoretical concepts used to design the questionnaire. Factor scales were constructed by selecting four items from among the highest factor loading for each behavioral dimension. In this study, the PR was confirmed content validity by seven experts. One expert is nursing instructor who has experience in instrument development and adolescent mental health field. Two experts are the Advance Practice Nurses (APNs) in child mental health and psychiatric nursing. Two experts are child and adolescent psychiatrists. One expert is child and adolescent psychiatrist who has experience in instrument development and research about disruptive behavior in children and adolescents. One expert is a psychiatrist and medical instructor who has experience in instrument development. These experts were asked to evaluate content validity of instruments by rate the level of relevancy between items and the definition of the concepts as represented. The responses include a rating of 1= not relevant, 2= somewhat relevant, 3= quite relevant, 4= highly relevant, and clarify the items using open suggestions. The acceptable score are equally or higher .80 (Polit et al, 2007). In this study, the results of content validity index, the Scale-CVI of the PR was 1.00. The item-CVI was 1.00.



The construct validity was tested by confirmatory factor analysis in 123 adolescents with disruptive behavior and depression. The results indicated that the measurement model of parenting behavior fit the data. The results are presented in Table 7.

**Table 7 Confirmatory factor analysis of the measurement model of parenting behavior**

| Construct (number of indicators) | Standardized Factor Loading | t-value | SE | $R^2$ |
|---|---|---|---|---|
| Parenting behavior (5) | -0.32-.89 | -3.22-6.93 | .29-.52 | .07-.79 |
| ($\chi^2$ = 3.33, df = 4, $\chi^2$/df = .83, p-value = .505, RMSEA = .000, GFI = 0.99, AGFI = .96) | | | | |

***Nate.*** $\chi^2$ = Chi-square**;** df = degree of freedom**;** RMSEA = Root Mean Square Error of Approximation**;** GFI = Goodness of Fit Index; AGFI = Adjust Goodness of Fit Index

***Reliability.*** Cronbach's alpha were ranged from .67 to .90 (Cohen et al. 1977; Drabick et al., 2006). In pilot study of this research, the reliability of the PR was .65 (n=30) if items 7 and item 20 deleted. Those were two of four items in the control through guilt dimension. The reason for this situation may be some cultural effect. Because Thai parents may consider the control through guilt as positive parenting behavior. Therefore, the eighteen items of the PR was used to measure parenting behavior in this study. The reliability of PR (18 items) were .65 (n = 30) and .71 (n = 123).

**Translation procedure for the instruments**

Five instruments were translated into Thai. Those are the Parent's Report questionnaire, the Family Environment Scale- Relationship dimension, the Social Competence subscale from the Perceived Competence Scale, the Conduct Disorder symptoms dimension from the CADBI, and Deviant Peer Affiliation Questionnaire. After obtained permissions from the developers, the researcher contacted the translators at the Chulalongkorn Language Institute (CULI). The forward translation

from English into Thai has done by a bilingual person. After that, review the translated version by another bilingual person together with review by researcher and advisors. After getting all comments, the researcher made an appointment and discuss with the translators and reviewers for revising the Thai version. After finished the forward translation version (Thai version), the researcher contacted the CULI for conducting the backward translation. The backward translation has conducted by another bilingual person, who is blinded to the original English version.

**Testing psychometric properties of the instruments**

**1. Content validity.** Validity of an instrument is a determination of the extent to which the instrument actually reflects the abstract construct being examined (Burns & Grove, 2001). Two key issues; whether individual item are relevant and appropriate in term of the construct and whether the items adequately measure all dimensions of the construct (Polit & Beck, 2006; 2012). The validity were examined by a panel of experts. The results from the content validity are to identify the items that should be refined, changed, or deleted following comments or suggestions of a panel expert. A CVI value were computed for each item on a scale (which refer to I-CVI), and for the overall scale (which refer to S-CVI). The Content Validity Index (CVI) will be calculated for each instrument. Lynn (1986) provided widely cited guidelines for acceptable CVI that relation to the number of experts. She advocated that when there are five or fewer experts, the I-CVI must be 1.00, all experts must agree that the item is content valid. When there are more than five experts, there can be a

modest amount of disagreement. Scale developers often use a criterion of .80 as the lower limit of acceptability for an S-CVI. The method to compute the S-CVI by averaging I-CVIs will be used to calculate the S-CVI/Ave in this study.

This study confirmed content validity by seven experts. One expert is nursing instructor who has experience in instrument development and adolescent mental health field. Two experts are the Advance Practice Nurses (APNs) in child mental health and psychiatric nursing. Two experts are child and adolescent psychiatrists. One expert is child and adolescent psychiatrist who has experience in instrument development and research about disruptive behavior in children and adolescents. One expert is a psychiatrist and medical instructor who has experience in disruptive behavior instrument development. The criteria in selecting experts were considered with relevant training, clinical experience, publications, and qualifications. These experts were asked to evaluate content validity of instruments by rate the level of relevancy between items and the definition of the concepts as represented. The responses include a rating of 1= not relevant, 2= somewhat relevant, 3= quite relevant, 4= highly relevant, and clarify the items using open suggestions. The acceptable score are equally or higher .80 (Polit et al, 2007). The results of content validity index were summarized in Table 8.

**Table 8 Content Validity Index (CVI) of research instruments**

| Instruments | Scale-CVI/Ave | Item-CVI |
|---|---|---|
| 1. Center for Epidemiologic Studies-Depression Scale (20-item) | .97 | .86-1.00 |
| 2. Social Competence Questionnaire (6-item) | .98 | .86-1.00 |
| 3. Family Environment Scale-Relationship dimension (27-item) | .99 | .86-1.00 |
| 4. Deviant Peer Affiliation questionnaire (9- item) | .97 | .86-1.00 |
| 5. Childhood ODD questionnaire (1-item) | 1.00 | 1.00 |
| 6. Child and Adolescent Disruptive Behavior Inventory (37-item) | 1.00 | 1.00 . |
| 7. Parent's Report questionnaire (20-item) | 1.00 | 1.00. |



**2. Reliability.** The reliability of a measure denotes the consistency of measure obtained in the use of a particular instrument (Burns & Grove, 2001). The questionnaires were examined the reliability in 30 adolescents whose characteristics are similar to those of the sample in the main study. Cronbach's alpha coefficient was estimated for internal consistency reliabilities of the instruments in this study. Cronbach's alpha is one of the most important indicators of a scale's quality

(DeVellis, 2003): alpha between .65 and .70, minimally acceptable; .70 and .80, respectable; .80 and .90, very good. Only the Family environment scale that scored dichotomously (or binary scored item), was estimated the internal consistency, alpha, by a popular formular, namely Kuder-Richardson 20 (Pedhazur & Schmelkin, 1991) as presented below.

$$\alpha = \frac{k}{k-1}\left[1-\frac{\sum p_i q_i}{\sigma_x^2}\right]$$

All instruments were assessed reliabilities by a pilot study. After approval from the Ethical Review Committee for Research Involving Human Research Subjects, Health Sciences Group, Chulalongkorn University (ECCU) and the IRB of the hospitals and get permission for pilot study, all instruments was conducted by the researcher in 30 Thai adolescents and their parents whose similar characteristics of the sample. The participants were informed of their rights to decide to participate or refuse to participate in the pilot study. The results of the pilot study showed that the time spent on completion of the questionnaires took about 30 minutes. The reliabilities of instruments were summarized in Table 10.

**Table 9 Reliabilities of instruments in this pilot study (n = 30) and study (n = 123)**

| Variable | Instrument | Items | Cronbach's alpha (n = 30) | Cronbach's alpha (n=123) |
|---|---|---|---|---|
| Disruptive Behavior | Child and Adolescent Disruptive Behavior Inventory | 37 | .96 | .96 |
| Depression | Center for Epidemiologic Studies-Depression Scale | 20 | .76 | .62 |
| Parenting Behavior | Parent's Report Questionnaire | 18 | .65 | .71 |
| Deviant Peer Affiliation | Deviant Peer Affiliation Questionnaire | 9 | .89 | .82 |
| Social Competence | Social Competence Questionnaire | 4 | .78 | .75 |
| Family Environment | Family Environment Scale-Relationship dimension | 27 | .72 [KR-20=.72 ] | .73 [KR-20=.73] |

**Protection of the rights of human subjects**

This study was approved by the Ethical Review Committee for Research Involving Human Research Subjects, Health Sciences Group, Chulalongkorn University (ECCU) and the Institutional Review Board (IRB) of each hospital/institute before data collection. The participants and their parents were informed of the purposes of the study, benefits, types of questionnaires, and the length of time to complete the questionnaires, and their rights to decline participation. They also were informed that if they decided to participate in the study, during the participation, they could express doubt about some questions or refuse to answer any questions. In addition, they were informed that they are able to withdraw from the study at any time if they wish and their decision were not affect the treatments or services they would receive from healthcare providers at the hospitals/institutes. In addition, potential risks to participants are minimal, such as emotional discomforts when answering some questions. Participants were encouraged that if any time they felt uncomfortable while filling out the questionnaires, they can discuss with the researcher. The researcher provided psychological support. Their names were not addressed in the questionnaires and were not reported with the study findings. A code number is used to ensure confidentiality instead. The participants' data is kept in a secure place and only the researcher has access to the data. The participants could reach the researcher by mobile phone if they need to ask any questions about the study.

**Data collection procedure**

The following section describes procedures of the data collection for this study is presented as these follows:

1. Prior to data collection, this study was approved by the Ethical Review Committee for Research Involving Human Research Subjects, Health Sciences Group, Chulalongkorn University (ECCU) and approved by the IRB of the settings. The letters asking for permission to collect data from the Faculty of Nursing, Chulalongkorn University were sent to responsible and related officers of the target settings.

2. After the letter of approval was received from the responsible and related officers, the researcher made personal contact with nurses/staffs who work with adolescents with disruptive behavior at the settings. The researcher made an appointment with the psychiatrists and nurses in each setting to inform them about this study and data collection procedure. Researcher had asked for cooperation from psychiatrists and nurses to select potential participants who met the inclusion criteria. After researcher has received the names from the psychiatrists and nurses, researcher made codes for each and select potential participants by systematic random sampling from the lists. In addition, researcher asked the nurses for their cooperation to arrange appropriate spaces for the participants to respond to questionnaires.

3. Research assistants were trained for data collection. Two nurses who graduated master degree in nursing science (Mental Health and Psychiatric Nursing)

and have experiences in child and adolescent psychiatric nursing were the research assistants. Research assistants were trained by the researcher in questionnaire administration. They also were trained to inform assent and consent by using the participant information sheet and parent information sheet. During practice to inform assent and consent, if the potential participant or parent did not understand or have some question(s), the research assistant would practice to answer the questions until the participant and parent understand the information. Before let the research assistants did the procedure by themselves, researcher has tested them by observe their practice and give them suggestion to improve their understanding in using the questionnaires, conducting inform assent and consent procedures. After they could done in appropriate way, researcher let them know and allow them to be research assistants for data collection.

4. The process of obtaining parental consent for adolescent participation and adolescent assent was done at the time of data collection. At the Child and Adolescent Outpatient Department/Services, the potential participant and his/her parent were approached by the researcher/research assistant.

5. The researcher/research assistant introduced herself to the potential participant and his/her parent at the same time. The parent read the parent's information sheet by himself/herself. Whereas, researcher/research assistant read the participant information sheet for each potential participant. The potential participants and their parents were informed of the purposes of the study, benefits, types of

questionnaires, and the length of time to complete the questionnaires, and their rights to decline participation. They also were informed that if they decided to participate in the study, during the participation, they could express doubt about some questions or refuse to answer any questions. In addition, they were informed that they are able to withdraw from the study at any time if they wish and their decision were not affect the treatments or services they would receive from healthcare providers at the hospitals/institutes. Potential risks to participants are minimal, such as emotional discomforts when answering some questions. If any time they felt uncomfortable while filling out the questionnaires, they can discuss with the researcher/research assistant. The researcher/research assistant would provide support. Their names were not addressed in the questionnaires and were not reported with the study findings. A code number was used to ensure confidentiality. The data were kept in a secure place and only the researcher have access to the data. They could reach the researcher by mobile phone if they need to ask any questions about the study.



Potential participants got the time to ask any questions before making decision. If one of them did not comply. They have rights to decline participation. So, researcher/research assistant accepted their decisions and told them again that their decisions did not affect the treatments or services they would receive from healthcare providers at the hospital/ institute. Researcher/research assistant say thank you for their time to receive the information. If they agree to take part in this study and the parents allow them to participate, they were asked to verbal assent and the

parents were asked to sign consent form. They were received the copy of participant information sheets and consent form.

5. Participants and their parents received and completed the questionnaires. If they did not understand questionnaires, researcher/research assistant helped them clarify the items. The time to complete the questionnaire were about 30 minutes. Data were conducted anonymously.

6. Researcher/research assistant give a gift set (a pen and a notebook) to participants when they return the questionnaires.

7. When the participants return the questionnaires, researcher/research assistant checked the answer of all questionnaires. For Depression scale (CES-D), if there is even only one item checked 10, 18, 20 as all of the time and 8, 12 as none of the time, researcher/research assistant would give psychological support. In addition, researcher/ research assistant would ask for permission to tell his/her psychiatrist/nurse about the information. Together with tell him/her about the reason. Because he/she should get more assessment regarding this information and would get the appropriate treatment. After that, researcher/research assistant referred case to the psychiatrist/nurse for getting more assessment and treatment.

8. The questionnaires of participants which the CES-D scores equal/above 16 score were selected into data analysis for this study.

**Data analysis**

As for preparation of the analysis process, the researcher checked and cleaned the data. The Statistical Package for Social Science (SPSS) program version 17.0 was used to analyze data and provide descriptive statistics. Linear Structural Relationship (LISREL) version 8.72 was employed for the path analysis. An alpha level of .05 was set as the accepted level of significance for this study. The steps involved in data analysis were as follows:

1. All data were double-checked to confirm the accuracy of the data file. The researcher used a frequency table to verify incorrectly keyed category variables. In addition, a summary of descriptive statistics was used to help check the range of variables for incorrectly keyed category numeric values, number of sample, mean, median, and maximum and minimum values.

2. Missing data and outlier were investigated. A total of 123 questionnaires were selected for accuracy data check. The researcher found no missing data. As for outliers, the data set was checked for both univariate and multivariate outliers.

3. Descriptive statistics, including frequencies, means, and standard deviations were used to describe the demographic data and to examine the distribution of demographic and major variables in this study.

4. The Pearson's Product Moment correlations is used to test for bivariate relationships between disruptive behavior and depression.

5. The statistical assumptions underlying multivariate analysis including normality of distribution, homoscedasticity, linearity of relationships, and multicollinearity were examined. Pearson's Product Moment correlations was used to test for bivariate relationships among pairs of variables and to assess multicollinearity among the independent variables. Multiple regression analyses was used to compute a variance inflation factor and tolerance to examine multicollinearity among the major variables.

6. The measurement model were evaluated to verify that the theoretical constructs are accurately represented by observed variables using confirmatory factor analysis. Separate measurement models were tested for each latent variable.

7. Path analysis was used to analyze the hypothesized model because it can assess the direct effects and indirect effects of some variables (Hair et al., 2010). The hypothesized path model was tested and modified for best fit and parsimony. LISREL was used to estimate the parameters of the path model associated with the study's specific aims. The overall model fit-index was examined to determine how well the hypothesized model fit the existing data. According to Hair et al. (2010), statistical criteria could be utilized to evaluate the overall model-fit-index, so the researcher selected some statistical criteria to evaluate the hypothesized model as follows:

7.1 The first set of goodness of fit statistics was the Chi-square ($\chi^2$) value. The $\chi^2$ test statistics was used in hypothesis testing to evaluate the

appropriateness of the hypothesized model. $\chi^2$ is non-significant of a level with a corresponding p value > .05, and preferably a value close to 1.00 is recommended for the hypothesized model that fit the data. However, $\chi^2$ value is dependent on model complexity and sample size. The $\chi^2$ value of a more complex, highly parameterized model tends to be smaller than that of simpler models because of the reduced degree of freedom (df). When the sample size and a constant number of df are larger, the $\chi^2$ value increases. For a good model fit, the ratio $\chi^2$/df should be as small as possible. A ratio between 2 and 3 is indicative of a "good" or "acceptable" data-model fit, respectively. Thus, the first set criteria for testing a goodness of fit statistics is that $\chi^2$ is non-significant (p >.05), and $\chi^2$/df should be less than 2.

7.2 The second set of goodness of fit statistics is based on the difference between the sample covariance matrix and the model implied covariance matrix. The following indices are descriptive measures of overall model fit: Root Mean Square Error of Approximation (RMSEA), Root Mean Square Residual (RMR), and Standardized Root Mean Square Residual (SRMR). RMSEA values ≤ .05 can be considered as a good fit model, while values between .05 and .08 as an adequate fit model. SRMR values should be less than .05 for a good fit model. Additionally, the difference between the sample covariance matrix and the fitted matrix divided by the large-sample error of the residual is called a standardized residual (Jöreskog and

Sörbom, 1996). For a good fit model, the absolute value of smallest and largest standardized residual should be no more than 2.

7.3 The last goodness of fit statistics is the comparison between the fit of a model of interest and the fit of some baseline model. The goodness-of-fit index (GFI) is a measure of the proportion of all variances and covariance accounted for by the model and compared the squared residuals from prediction with the actual data. It represents the overall degree of fit ranging from 0 (poor fit) to 1 (perfect fit). GFI ≥ .95 is indicative of a good fit relative to the baseline model, while values greater than .90 are usually interpreted as indicating an acceptable fit. The adjusted goodness of fit index (AGFI) is an extension of GFI that is adjusted by the degree of freedom for the proposed model to the degree of freedom for the null model. AGFI greater than .90 is indicative of a good fit relative to the baseline model, while values greater than .85 may be considered as an acceptable fit. Thus, the last criteria for testing a goodness of fit statistics are GFI ≥ .95 and AGFI ≥ .90.

8. In the present study, once it was determined that the hypothesized model fit the data, path coefficient and $R^2$ were estimated and the effects of the independent variables (childhood ODD, parenting behavior, family environment, deviant peer affiliation, and social competence) on the dependent variables (disruptive behavior and depression) were determined to answer the research questions and test the hypotheses. The goodness-fit-indices were used to determine whether the model adequately fit the data.

**Summary**

This chapter has provide information about the research design, population and sample, instruments and psychometric properties testing, protection of the rights of human subjects, data collection, and data analysis.

# CHAPTER IV
# RESULTS

This chapter presents the findings of the study. The findings regarding demographic characteristics of the participants and the seven major study variables derived from descriptive statistical analysis are presented. The preliminary analysis and analysis of the hypothesized model are also displayed.

## Characteristics of the participants

### Demographic characteristics of the participants

A total of 123 participants who were adolescents with disruptive behavior and depression were included in this analysis. The findings show that most of the participants were male (80.5%), age 13 years old (42.3%), studying in secondary school (Mattayomsuksa) (72.4 %). In addition, most of them had grade point average less than 2.00 (38.2%). They have been lived with family members 4 members (35.0%), and most of them lived with father, mother, and sibling(s) (31.7%).

Whereas, the findings show that most of participants' parents were female (73.2%), and mothers (66.7%). The majority of the parents were aged between 41 and 50 years old (57.7%) and married (62.6%). In addition, most of the parents had finished Bachelor's degree (29.3%). Details regarding the demographic characteristics are presented in Table 10.

Table 10 Demographic characteristics of participants (n= 123)

| Characteristics | Number | Percentage |
|---|---|---|
| **Gender** | | |
| Male | 99 | 80.5 |
| Female | 24 | 19.5 |
| **Age (year)** [Mean = 14.57 (SD= 1.59)] | | |
| 13 | 52 | 42.3 |
| 14 | 16 | 13.0 |
| 15 | 17 | 13.8 |
| 16 | 14 | 11.4 |
| 17 | 24 | 19.5 |
| **Education** | | |
| **Studying at** | | |
| Elementary school (Prathomsuksa) | 9 | 7.3 |
| Secondary school (Mattayomsuksa) | 89 | 72.4 |
| Vocational and technical school | 9 | 7.3 |
| **Not studying and had finished:** | | |
| Elementary school (Prathomsuksa) | 6 | 4.9 |
| Secondary school (Mattayomsuksa) | 9 | 7.3 |
| Vocational and technical school | 1 | 0.8 |
| **School Achievement (GPA)** | | |
| Less than 2.00 | 47 | 38.2 |
| 2.00-2.49 | 34 | 27.6 |
| 2.50-2.99 | 23 | 18.7 |
| More than or equal to 3 | 16 | 13.0 |
| Did not answer | 3 | 2.4 |

**Table 10: Demographic characteristics of participants (n= 123) (cont.)**

| Characteristics | Number | Percentage |
|---|---|---|
| **Numbers of family members** | | |
| 2 | 10 | 8.1 |
| 3 | 29 | 23.6 |
| 4 | 43 | 35.0 |
| 5 | 13 | 10.6 |
| 6 | 19 | 15.4 |
| More than or equal to 7 | 9 | 7.3 |
| **Lived with** | | |
| Father and mother | 17 | 13.8 |
| Father, mother, sibling(s) | 39 | 31.7 |
| Father, mother, relative(s) | 4 | 3.3 |
| Father, mother, sibling(s), relative(s) | 19 | 15.4 |
| Father or mother | 6 | 4.9 |
| [Father or mother] and sibling(s) | 3 | 2.4 |
| [Father or mother] and relative(s) | 9 | 7.3 |
| [Father or mother], sibling(s) and relative(s) | 9 | 7.3 |
| [Father or mother], [Father in law or mother in law], and/or sibling(s), and/or relative(s) | 11 | 8.9 |
| Mother in law | 3 | 2.4 |
| Mother in law and sibling | 1 | 0.8 |
| Relative | 2 | 1.6 |
| **Gender of parents** | | |
| Male | 33 | 26.8 |
| Female | 90 | 73.2 |

**Table 10: Demographic characteristics of participants (n= 123) (cont.)**

| Characteristics | Number | Percentage |
|---|---|---|
| **Parents relationship to the adolescent** | | |
| Father | 33 | 26.8 |
| Mother | 82 | 66.7 |
| Grand parent | 2 | 1.6 |
| Aunt | 3 | 2.4 |
| Mother in Law | 3 | 2.4 |
| **Age of parents (year)** [Mean = 44.15 (SD = 8.18)] | | |
| 30-40 | 39 | 31.7 |
| 41- 50 | 71 | 57.7 |
| 51- 60 | 11 | 8.9 |
| More than 60 | 2 | 1.6 |
| **Marital status of parents** | | |
| Married | 77 | 62.6 |
| New Married | 5 | 4.0 |
| Divorce | 15 | 12.2 |
| Separated regarding work | 4 | 3.3 |
| Separated regarding family problems | 13 | 10.6 |
| Widow | 4 | 3.3 |
| Single | 5 | 4.0 |
| **Educational level of the parent** | | |
| Never enter the school | 2 | 1.6 |
| Elementary school (Prathomsuksa) | 34 | 27.6 |
| Secondary school (Mattayomsuksa) | 22 | 17.9 |
| Vocational and technical school | 13 | 10.6 |
| Diploma | 3 | 2.4 |
| Bachelor's degree | 36 | 29.3 |
| Above Bachelor's degree | 13 | 10.6 |

**Clinical characteristics of the participants**

Most of participants had been diagnosed with ADHD (77.2 %) and CD and ODD had been diagnosed at 13.0 % and 1.6 % respectively. Details regarding the clinical characteristics are presented in Table 12.

**Table 11 Clinical characteristics of participants (n= 123)**

| Characteristics | Number | Percentage |
|---|---|---|
| **Diagnosed** | | |
| ADHD | 95 | 77.2 |
| CD | 16 | 13.0 |
| ODD | 2 | 1.6 |
| ADHD and CD/ODD | 9 | 7.3 |
| ADHD and CD and ODD | 1 | 0.8 |

**Characteristics of the study variables**

The seven major variables in this study include disruptive behavior, depression, childhood ODD, parenting behavior, family environment, deviant peer affiliation, and social competence. The detail regarding characteristics of each variable is presented as follows:

**Disruptive behavior**

The total scores of disruptive behavior ranged from 41 to 228 with a mean of 88.98 (SD = 41.25). The disruptive behavior scores had a positive skewness value (1.191), thus indicating that most of the participants had score of disruptive behavior lower than the mean score. The kurtosis value of disruptive behavior was a positive

value (.960), thus suggesting that the disruptive behavior scores were shaped like a leptokurtic (see Table 13).

**Depression**

The total scores of depression was ranged from 16 to 49 with a mean of 22.06 (SD = 5.48). The depression scores had a positive skewness value (1.741), thus indicating that most of the participants had score of depression lower than the mean score. The kurtosis value of depression was a positive value (4.719), thus suggesting that the depression scores were shaped like a leptokurtic. All participants had a level of depression because they have CES-D (depression) scores as/above the cut off score of 16 (see Table 13).

**Childhood ODD**

The total scores of childhood ODD was ranged from 0 to 4 with a mean of 1.52 (SD = 1.10). The childhood ODD scores had a slight positive skewness value (.264), thus indicating that most of the participants had score of childhood ODD lower than the mean score. The kurtosis value of childhood ODD was a negative value (-.369), thus suggesting that the childhood ODD scores were shaped like a platykurtic (flattened curve) (see Table 13).

**Parenting behavior**

The total scores of parenting behavior was ranged from 48 to 100 with a mean of 72.09 (SD = 10.57). The parenting behavior scores had a positive skewness value and close to zero (.098), thus indicating that most of the participants had score

of parenting behavior close to the mean score. The kurtosis value of parenting behavior was a negative value (-.502), thus suggesting that the parenting behavior scores were shaped like a platykurtic (flattened curve) (see Table 13).

**Family environment**

The total scores of family environment was ranged from 4 to 25 with a mean of 16.89 (SD = 4.41). The family environment scores had a negative skewness value (-.767), thus indicating that most of the participants had score of family environment higher than the mean score. The kurtosis value of family environment was a positive value (.318), thus suggesting that the family environment scores were shaped like a slight leptokurtic (see Table 13).

**Deviant peer affiliation**

The total scores of deviant peer affiliation ranged from 0 to 3.67 with a mean of .97 (SD = .91). The deviant peer affiliation scores had a positive skewness value (1.212), thus indicating that most of the participants had score of deviant peer affiliation lower than the mean score. The kurtosis value of deviant peer affiliation was a positive value (.876), thus suggesting that the deviant peer affiliation scores were shaped like a leptokurtic (see Table 13).

**Social competence**

The total scores of social competence was ranged from 5 to 16 with a mean of 11.88 (SD = 2.71). The social competence scores had a negative skewness value

(-.491), thus indicating that most of the participants had score of social competence higher than the mean score. The kurtosis value of social competence was a negative value (-.487), thus suggesting that the social competence scores were shaped like a platykurtic (flattened curve) (see Table 13).

**Table 12 Possible range, actual range, mean, SD, skewness, kurtosis, standard error, and the interpretation of disruptive behavior, depression, childhood ODD, parenting behavior, family environment, deviant peer affiliation, and social competence (n = 123)**

| Variable | Possible range | Actual range | Mean | SD | Skewness (SE) | Z value | Kurtosis (SE) | Z value |
|---|---|---|---|---|---|---|---|---|
| **DB** | 37-296 | 41-228 | 88.98 | 41.25 | 1.191 (..22) | 5.41 | .960 (.43) | 2.23 |
| **DEP** | 0-60 | 16-49 | 22.06 | 5.48 | 1.741 (.22) | 7.91 | 4.719 (.43) | 10.97 |
| **CHODD** | 0-4 | 0-4 | 1.52 | 1.10 | .264 (.22) | 1.20 | -.369 (.43) | -.86 |
| **PR** | 0-108 | 45-100 | 68.17 | 11.03 | .173 (.22) | .79 | -.519 (.43) | -1.20 |
| **FESR** | 0-27 | 4-25 | 16.89 | 4.41 | -.767 (.22) | -3.49 | .318 (.43) | .74 |
| **DPA** | 0-5 | 0-3.67 | .97 | .91 | 1.212 (.22) | 5.51 | .876 (.43) | 2.04 |
| **SOC** | 4-16 | 5-16 | 11.88 | 2.71 | -.491 (.22) | -2.23 | -.487 (.43) | -1.13 |

***Note.*** DB= Disruptive Behavior, DEP = Depression, CHODD = Childhood ODD, PR = Parenting Behavior, FESR= Family Environment, DPA= Deviant Peer Affiliation, SOC = Social Competence

**Preliminary Analysis**

Before path analysis will be conducted, normality, linearity, homoscedasticity, and multicollinearity were tested in order to ensure that there was no violation of the underlying assumption. The results of normality of distribution, linearity of relationships, homoscedasticity, and multicollinearity testing are presented as follows.

**Normality testing**

In the current study, descriptive statistics including mean, standard deviation, skewness, and kurtosis were used to test normality of variables. The skewness of seven major variables ranged from -.767 to 1.741, and the kurtosis of variables ranged from -.519 to 4.719 (see Table 7). In fact, an absolute value of 2.0 for skewness is considered a departure from normality (Li et al., 1998), and a value of univariate skewness greater than ± 3.0 indicates extreme skewness (Kline, 1998). For seven major variables, the skewness values of seven major variables less than 2.0. According to Hair and colleagues (2010), if either calculated z value exceeds the specified critical value, the distribution is nonmormal in terms of that characteristic. The most commonly used critical values are ± 2.58 at the .01 significance level and ± 1.96 at .05 significance level. As for the seven major variables, the skewness z values ranged from .45 to 7.91 and kurtosis z value ranged from -1.17 to 10.97. Some variables have z value greater than 2.58, thus they were considered as nonnormal distribution. The independent variables which have skewness z value greater than

±2.58 are family environment (-3.49), and deviant peer affiliation (5.51). Thus, they were considered as nonnormal distribution. Therefore, transformations to achieve normality were applied to family environment by cubed and deviant peer affiliation by taking the square root.

**Linearity testing**

Multiple regression assumes that there is a linear relationship between the independent variables and the dependent variable. The linearity testing can be checked by the residual plot which is a visual examination of the scatter plot graph between the standardized residual (y-axis) versus the predict values (x-axis). Nonlinearity is indicated when most of the residuals are above the zero line on the plot at some predicted values and below the zero line at other predict values (Tabachnick & Fidell, 2007). In other words, the assumption of linearity is met when the standardized residual values are randomly around the horizontal line. In the current study, the scatter plot between independent and dependent variables showed such a linear relationship.



**Homoscedasticity testing**

Homoscedasticity means that the variance of error is the same across all levels of the independent variables (Osborne & Waters, 2002; Hair et al., 2010). This assumption can be tested by a visual examination of the plot of the regression of the standardized predicted dependent variable against the regression standardized residual. Homoscedastisticity is indicated when the residual plots are randomly

scattered around zero (in the horizontal line) (Osborne & Waters, 2002; Hair et al., 2010). In the current study, the scatter plot of residuals showed the results from homoscedastic data.

**Multicollinearity testing**

Two common criteria can be used to examine multicollinearity: 1) Pearson's correlation coefficients and 2) tolerance values and variance inflation factor (VIF). The correlation of two variables that does not exceed ± .9 indicates that there is no multicollinearity (Tabachnick & Fidell, 2007). In the current study, the correlation coefficients among the seven major variables ranged from -.293 to .378. Thus, these correlation coefficients indicated no multicollimearity (see Table 14).

In fact, the tolerance measures of multicollinearity among the independent variables (values ranging from 0 to 1) and the tolerance value that approaches zero indicates multicollinearity (Mertler & Vannatta, 2002). It is worth noting that the values of VIF that are greater than 10 indicate a cause of concern (Mertler & Vannatta, 2002). In the present study, the results of the multiple regression analysis indicated that the tolerance ranged from .93 to .97 (not approaching 0) and VIF ranged from 1.03 to 1.08 (not greater than 10). Thus, these results confirmed no violation for multicollinearity.

**Table 13 Correlation matrix of the study variables (n = 123)**

| | DB | DEP | CHODD | PR | FESR | DPA | SOC |
|---|---|---|---|---|---|---|---|
| **DB** | 1.00 | | | | | | |
| **DEP** | .134 | 1.00 | | | | | |
| **CHODD** | .378** | .160 | 1.00 | | | | |
| **PR** | -.173 | -.040 | -.114 | 1.00 | | | |
| **FESR** | -.081 | -.293** | -.188* | .032 | 1.00 | | |
| **DPA** | .062 | .069 | -.106 | -.106 | -.111 | 1.00 | |
| **SOC** | .054 | -.232** | -.126 | .032 | .123 | .084 | 1.00 |

***Note.*** *p< .05; **p< .01, CHODD = Childhood ODD, FESR= Family Environment, DPA= Deviant Peer Affiliation, PR = Parenting Behavior, SOC = Social Competence, DB= Disruptive Behavior, DEP = Depression

**Findings of research questions and hypothesis testing**

The findings that answered the research questions and the results of the testing of the hypothesized model are described below:

**Research question 1: Does disruptive behavior have positive association with depression among Thai adolescents?**

The Bivariate Pearson correlation was used to evaluate the relationships between disruptive behavior and depression among Thai adolescents. The magnitude of relationships was determined by the following criteria: r <.30 = weak or low relationship, .30 ≥ r ≤ .50 = moderate relationship, and r >.50 = strong or high

relationship (Burn & Grove, 2005). In this study, the results from Pearson correlation analysis show that disruptive behavior has a non-significant positive association with depression among Thai adolescents ($r = .13$, $p > .05$) ($n = 123$).

**Research question 2: Does the hypothesized path model include influencing variables: childhood ODD, parenting behavior, family environment, deviant peer affiliation, and social competence explain the co-occurrence of disruptive behavior and depression among Thai adolescents adequately fit the data?**

**1. Hypothesis testing**

**1.1 Measurement model testing**

Confirmatory factor analysis was conducted to examine factor loading for each item and the goodness-of-fit indices of the measurement model and the data. In this study, six measurement models were tested including disruptive behavior, depression, parenting behavior, family environment, deviant peer affiliation, and social competence.



The results of confirmatory factor analysis (CFA) revealed that all measurement models had acceptable to good overall model fit. The results showed that these measurements had Chi-square values resulting in a non-significant difference level of 0.05. The $\chi^2$/df ratio was less than 2.00, with both GFI and AGFI values close to or equal 1.00. The RMSEA values less than .08 (ranged from .000

to .026), indicating a validity of measurement constructs. The results of confirmatory factor analysis (CFA) were presented in Table 14.

**Table 14 Goodness of fit statistics of the measurement models (n=123)**

| Measurement | $\chi^2$ | df | $\chi^2$/df | p-value | GFI | AGFI | RMSEA |
|---|---|---|---|---|---|---|---|
| Disruptive behavior | 2.41 | 2 | 1.21 | .299 | .99 | .95 | .041 |
| Depression | 182.03 | 154 | 1.18 | .061 | .87 | .82 | .039 |
| Parenting behavior | 3.33 | 4 | .83 | .505 | .99 | .96 | .000 |
| Family environment | 0.00 | 0 | 0/0 | 1.00 | 1.00 | 1.00 | .000 |
| Deviant peer affiliation | 35.16 | 23 | 1.53 | .050 | .94 | .88 | .066 |
| Social competence | 2.06 | 1 | 2.06 | .151 | .99 | .92 | .093 |

***Nate.*** $\chi^2$ = Chi-square**;** df = degree of freedom**;** RMSEA = Root Mean Square Error of Approximation**;** GFI = Goodness of Fit Index; AGFI = Adjust Goodness of Fit Index



After the overall measurement model had been accepted, the results of the loading with t-values and construct validity were examined. In general, based on an accepted level of .05, t-value test statistics needs to be more than ± 1.96 before the hypothesis could be rejected. In this study, the results of the loading with t-values and construct validity of the measurement models of disruptive behavior, depression, parenting behavior, family environment, deviant peer affiliation, and social competence were reported in table 15.

**Table 15 Factor loading and reliability of measurement models (n =123)**

| Measurement: Construct (number of indicators) | Standardized Factor Loading | t-value | SE | $R^2$ |
|---|---|---|---|---|
| Disruptive behavior (4) | .57-.87 | 6.52-11.58 | .52-1.16 | .32-.76 |
| Depression(20) | -.26-.54 | -3.00-6.88 | .06-.09 | .00-.40 |
| Parenting behavior (5) | -0.32-.89 | -3.22-6.93 | .29-.52 | .07-.79 |
| Family environment (3) | .22-1.00 | 1.65-2.26 | .22-1.30 | .05-1.90 |
| Deviant peer affiliation (9) | .27-..79 | 2.87-9.59 | .10-.15 | .07-.63 |
| Social competence (4) | .53-.68 | 6.00-8.41 | .08-.09 | .30-.62 |

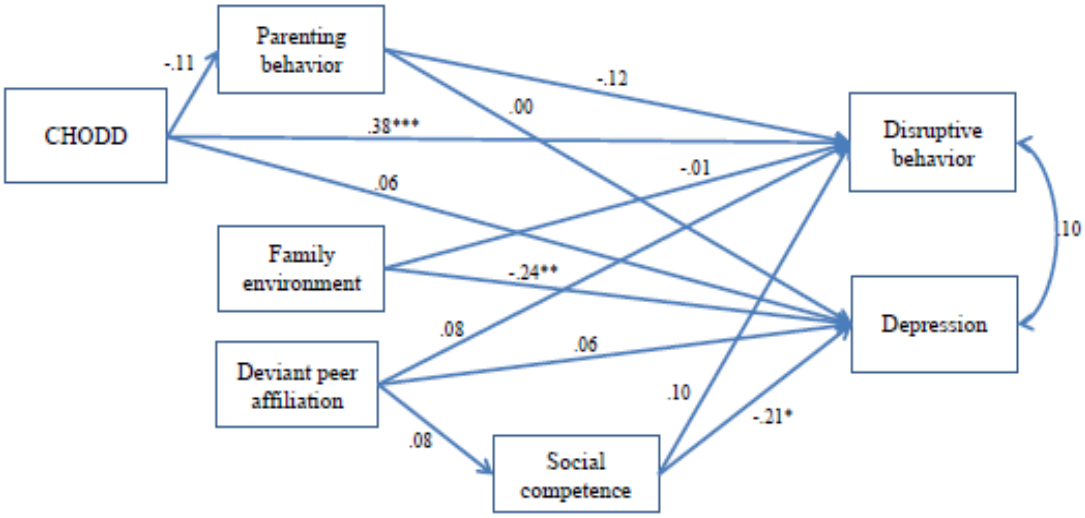
**1.2 Model testing**

Path analysis was conducted to test the proposed model of co-occurrence of disruptive behavior and depression among Thai adolescents. From the hypothesized model, the exogenous variables were childhood ODD, family environment, and deviant peer affiliation while parenting behavior, social competence, disruptive behavior, and depression served as endogenous variables. The results of model testing were presented as follows.

According to Tabachnick and Fidell (2007), over-identication is the model with more data points than free parameters. The number of data points is {p(p+1)}/2, where p equals the number of observed variables. In the hypothesized model, there were seven variables and 14 free parameters. The number of data points was 28 = {7(7+1)}/2. The hypothesized model had more data points than free parameters. Thus, this model was over-identification which meant that it could be identified.

The initial hypothesized model of co-occurrence of disruptive behavior and depression was tested. The initial model was presented as Figure 4. The results

show that the goodness-of-fit statistics was acceptable range. The hypothesized model explained co-occurrence of disruptive behavior and depression as 18% ($R^2$ = .18) and 13% ($R^2$ = .13), respectively.




($\chi^2$ = 5.08, df = 5, $\chi^2$/df = 1.02, p-value = .405, RMSEA = .012, GFI = 0.99, AGFI = .93).

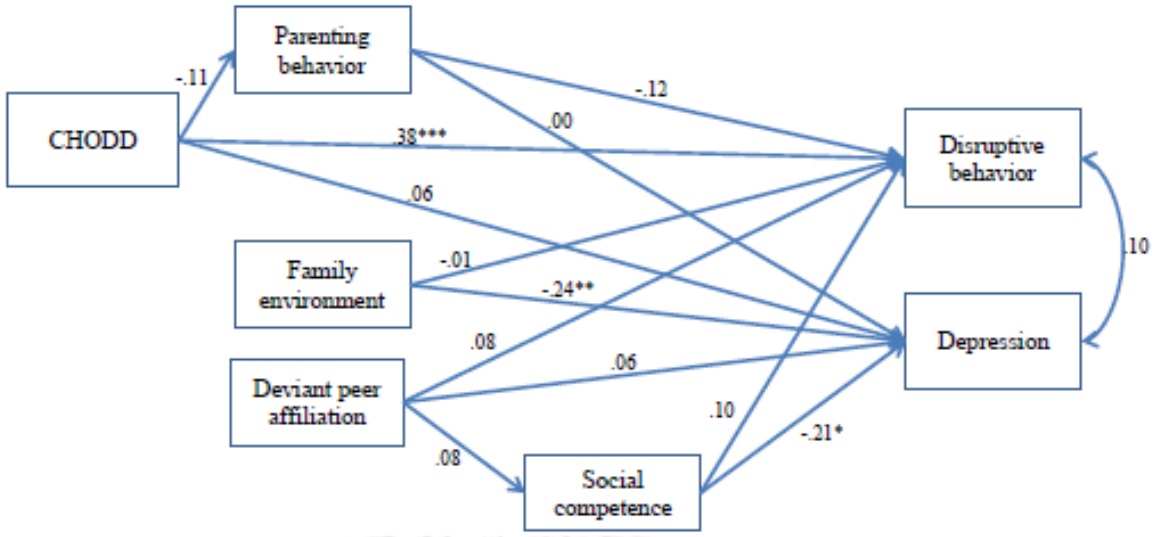
**Figure 4 The initial model of co-occurrence of disruptive behavior and depression among Thai adolescents**

The $\chi^2$ test statistics was used in hypothesis testing to evaluate the appropriateness of the hypothesized model. $\chi^2$ is significant of a level with a corresponding p value > .05. The results of model testing were presented in Table 16.

**Table 16 Comparison of the goodness of fit statistics between the initial model of co-occurrence of disruptive behavior and depression among Thai adolescents and the Goodness of Fit Statistical criteria**

| Relative fit index | Initial model | Final Model | Goodness of Fit Statistical criteria |
|---|---|---|---|
| $\chi^2$ | 5.08 | 5.08 | non significant |
| p-value | 0.406 | 0.533 | p >.05 |
| $\chi^2$/df | 5.08/5 = 1.02 | 5.08/6=.85 | less than 2 |
| RMSEA | 0.012 | 0.000 | less than .08 |
| GFI | 0.99 | 0.99 | more than .90 |
| AGFI | 0.93 | 0.95 | more than .90 |
| Smallest s. | -1.73 | -1.73 | less than ± 2 |
| Largest s. | 1.74 | 1.46 | less than ± 2 |
| $R^2$ for disruptive behavior | .18 | .18 | |
| $R^2$ for depression | .13 | .13 | |

***Note.*** $\chi^2$ = Chi-square**;** df = degree of freedom**;** RMSEA = Root Mean Square Error of Approximation**;** GFI = Goodness of Fit Index; AGFI = Adjust Goodness of Fit Index; Smallest s = Smallest standardized residual; Largest s = Largest standardized residual




($\chi^2$ = 5.08, df = 6, $\chi^2$/df = 0.85, p-value = .533, RMSEA = .000, GFI = 0.99, AGFI = .95).

**Figure 5 The final model of co-occurrence of disruptive behavior and depression among Thai adolescents**

The results show that the final model explained co-occurrence of disruptive behavior and depression as 18% ($R^2$ = .18) and 13% ($R^2$ = .13), respectively. The goodness-of-fit statistics fit better than the initial model that in normed chi-square ($\chi^2$/df ) less than the initial model indicated better-fitting model (Hair et al., 2010). In addition, the RMSEA of the final model is less than .08 and less than the RMSEA of the initial model as well. The results of the final model testing are summarized in accordance with the research hypothesized model as follows (see Table 13):

1). Disruptive behavior did not has positive association with depression among Thai adolescents ($r$ = .10, p > .05).

2). Childhood ODD had a significant positive direct effect on disruptive behavior ($\beta$ = .38, p < .001) and did not has positive direct effect on depression ($\beta$ = .06, p > .05). The findings support the hypothesized model only the direction of relationships between childhood ODD and disruptive behavior.

3). Parenting behavior did not has negative direct effect on disruptive behavior and depression ($\beta$ = -.12, p > .05 and $\beta$ = .00, p > .05). The findings did not support the hypothesis about relationship between parenting behavior and co-occurrence of disruptive behavior and depression in the hypothesized model.

4). Childhood ODD did not has indirect effect on disruptive behavior ($\beta$ = .01, p > .05) and depression ($\beta$ = .04, p > .05) via parenting behavior. The findings did not support the hypothesized model.

5). Family environment did not has negative direct effect on disruptive behavior ($\beta$ = -.01, p > .05) but had a significant negative direct effect on depression ($\beta$ = -.24, p < .01). The findings support the hypothesized model, which indicated that family environment should have a negative direct effect on depression.



6). Deviant peer affiliation did not has positive direct effect on disruptive behavior and depression ($\beta$ = .08, p > .05 and $\beta$ = .06, p > .05). The findings did not support the hypothesized model, which indicated that deviant peer affiliation should have a positive direct effect on disruptive behavior and depression.

7). Social competence did not has positive direct effect on disruptive behavior ($\beta$ = .10, p > .05), but had a significant negative direct effect on depression ($\beta$ = -.21, p < .05). Thus, such findings supported the hypothesized model which indicated social competence had a negative direct effect on depression.

8). Deviant peer affiliation did not have indirect effect on disruptive behavior and depression via social competence ($\beta$ = .01, p > .05 and $\beta$ = -.01, p > .05). Thus, such findings did not support the hypothesized model which indicated deviant peer affiliation should have indirect effect on disruptive behavior and depression via social competence.

Although the path from some variables to disruptive behavior and depression had a non-significant statistics, almost of them had the right direction following the hypothesized model and evidences. Byrne (1998) has noted that the substantive theoretical interest must be considered even though the statistics demonstrates a non-significant parameter. Therefore, the paths from all variables to co-occurrence of disruptive behavior and depression were retained in the final model in this study. All path coefficients are displayed in Table 18.

Table 17 Standardized path coefficients, standard error (SE) and T-value of parameter of the final model of co-occurrence of disruptive behavior and depression among Thai adolescents (n = 123)

| Path diagram | Standardized path coefficients | SE | T-value |
|---|---|---|---|
| **Beta** | | | |
| PR → DB | -0.12 | 0.31 | -1.47 |
| PR → DEP | 0.00 | 0.04 | 0.05 |
| SOC → DB | 0.10 | 1.27 | 1.21 |
| SOC → DEP | -0.21 | 0.17 | -2.40* |
| **Gamma** | | | |
| CHODD → PR | -0.11 | 0.91 | -1.26 |
| CHODD → DB | 0.38 | 3.21 | 4.47*** |
| CHODD → DEP | 0.06 | 0.47 | 0.61 |
| FES-R → DB | -0.01 | 0.03 | -0.10 |
| FES-R → DEP | -0.24 | 0.00 | -2.78** |
| DPA → DB | 0.08 | 7.09 | 0.95 |
| DPA → DEP | 0.06 | 0.96 | 0.69 |
| DPA → SOC | 0.08 | 0.50 | 0.92 |

***Note.*** CHODD= Childhood ODD, FESR= Family Environment, DPA= Deviant Peer Affiliation, PR= Parenting Behavior, SOC= Social Competence, DB= Disruptive Behavior, DEP= Depression

**Table 18 Summary of the total, direct, and indirect effects of the influencing variables on the affected variables (n = 123)**

| Variables | Affected variables | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | DB | | | DEP | | | PR | | | SOC | | |
| | DE | IE | TE | DE | IE | TE | DE | IE | TE | DE | IE | TE |
| CHODD | .38*** | .01 | .39*** | .06 | .04 | .10 | -.11 | - | -.11 | - | - | - |
| FESR | -.01 | - | -.01 | -.25** | - | -.25** | - | - | - | - | - | - |
| DPA | .08 | .01 | .09 | .04 | -.01 | .05 | - | - | - | .08 | - | .08 |
| PR | -.12 | - | -.12 | -.01 | - | -.01 | - | - | - | - | - | - |
| SOC | .10 | - | .10 | -.21* | - | -.21* | - | - | - | - | - | - |
| | $R^2$ = .18 | | | $R^2$ = .13 | | | $R^2$ =.01 | | | $R^2$ = .01 | | |

***Note.*** * significant at .05 level; ** significant at .01 level; *** significant at .001 level; DE = direct effect; IE = indirect effect; TE = total effect. CHODD = Childhood ODD, FESR= Family Environment, DPA= Deviant Peer Affiliation, PR = Parenting Behavior, SOC = Social Competence, DB= Disruptive Behavior, DEP = Depression



## Summary

The descriptive statistic characteristics of the variables investigated in this study have been explained. The preliminary analysis was analyzed and reported about the assumption for the path analysis. The hypothesized path model of co-occurrence of disruptive behavior and depression in Thai adolescents was tested and reported in this chapter. Finally, the variables in the final model explained approximately 18% and 13% of the variance of co-occurrence of disruptive behavior and depression

# CHAPTER V

# DISCUSSION

This chapter provides the discussion of the study findings. It includes conclusion, discussion of the characteristics of the participants and study variables, hypothesis testing, limitations, implications for nursing, and recommendations for future research.

## Conclusion

The purpose of this cross-sectional descriptive correlation study were to examine the relationship between disruptive behavior and depression among Thai adolescents and to examine factors influencing co-occurrence of disruptive behavior and depression among Thai adolescents by testing a path model that explains the influence of the selected factors on the co-occurrence of disruptive behavior and depression among Thai adolescents. The hypothesized model was developed based on empirical literature. Multi-stage random sampling procedure of 123 adolescents with disruptive behavior were recruited from the child and adolescent outpatient department/services at seven public hospital/institute from all regions of the Kingdom of Thailand. Data collection was carried out from December 2013 to June 2014.

The research instrument was a questionnaire used to measure major variables and demographic data. The questionnaire consisted of two parts, part one was for adolescents and part two was for parents to complete. The adolescents' questionnaire consisted of a demographic questionnaire, the Center for Epidemiologic Studies-Depression Scale (CES-D), the Social Competence Questionnaire, the Family Environment Scale-Relationship dimension, and the Deviant Peer Affiliation questionnaire. The parents' questionnaire consisted of a demographic questionnaire, the Childhood ODD questionnaire, the Child and Adolescent Disruptive Behavior Inventory (CADBI), and the Parent's Report questionnaire (PR). The validities and reliabilities of the instruments were examined. The Pearson's Product Moment correlation was used to test for bivariate relationship between disruptive behavior and depression. A LISREL version 8.72 was used to test the hypothesized path model.

One hundred twenty three adolescents with disruptive behavior participated in this research. The findings show that most of the participants were male (80.5%), age 13 years old (42.3%), studying in secondary school (Mattayomsuksa) (72.4 %). In addition, most of them had grade point average less than 2.00 (38.2%). They have been lived with family members 4 members (35.0%), and most of them lived with father, mother, and sibling(s) (31.7%). Whereas, most of participants' parents were female (73.2%), and mothers (66.7%). The majority of the parents were aged

between 41 and 50 years old (57.7%) and married (62.6%). In addition, most of the parents had finished Bachelor's degree (29.3%).

Moreover, the results from Pearson correlation analysis show that disruptive behavior did not has positive association with depression among Thai adolescents ($r = .13$, $p > .05$) ($n = 123$).

Furthermore, the results from path analysis show that the final model was accepted and fit the empirical data rather than the initial model. The overall model explained approximately 18% and 13% of the variance in co-occurrence of disruptive behavior and depression. The hypothesized model fit the empirical data. The final model had the goodness-of-fit statistics fit better than the initial model.

**Discussion**

The purpose of this study is to examine the relationship between disruptive behavior and depression among Thai adolescents, and to examine factors influencing co-occurrence of disruptive behavior and depression among Thai adolescents.

1. **To examine the relationship between disruptive behavior and depression among Thai adolescents**

The findings from this study show that disruptive behavior did not has association with depression among Thai adolescents ($r = .13$, $p > .05$) ($n=123$). This finding did not supported the hypothesis. This finding of this study was not congruent

with previous studies (Boylan et al., 2010; Chen & Simon-Morton, 2009; Diamantopoulou et al., 2010).

For the reason of incongruent results, it may be up to some reasons such as characteristics of the participants and setting of research study: school based or clinical settings. The previous study conducted in school (Chen & Simon-Morton, 2009). They studied 2,453 adolescents with co-occurrence of CP and depression in school. Adolescents in school may be included both who accessing and who did not accessing the mental health care services. Whereas, in present study, the participants were homogeneous characteristics: most of the participants were male (80.5%), age 13 years old (42.3%), studying in secondary school (Mattayomsuksa) (72.4 %). In addition, most of them had grade point average less than 2.00 (38.2%). The variety or homogeneous characteristics of the participants may impact on each study result on relationship.

In addition, all of them are the clients at the Child and Adolescent Mental Health and Psychiatric Outpatient Department/Services. They may have received continuing treatment and care from the mental health team. The parent may be received helpful information regarding how to care their child. The adolescents have more opportunities to be assessed and treated if they have another problems co-occurred than adolescents who does not visit there. Therefore, the result of relationship between disruptive behavior and depression in the homogeneous

characteristics participants could be less than the participants with variety of characteristics.

In addition, adolescents in this study have been lived with their family that most of the parents are married (62.6%) and well educated (graduated Bachelor degree and above as 29.3% and 10.6%). Based on these parents' characteristics and small numbers of loss follow up, it may be assumed that the parents have less socioeconomic problems. Because the expense for drugs and traveling to follow up the treatment may affect parents financial problems. In this study, adolescents may get enough support from their parents. Parents could support their child to receive the continuing care. Because adolescents in this study probably have enough support from their parents, they may less risk to develop more depression although they have disruptive behavior.

**2. To examine factors influencing co-occurrence of disruptive behavior and depression among Thai adolescents.**

2.1 *Childhood ODD had a significant positive direct effect on disruptive behavior ($\beta$ = .38, p < .001) but childhood ODD did not has positive direct effect on depression ($\beta$ = .06, p > .05).*

The findings support the hypothesis only the direction of relationships between childhood ODD and disruptive behavior in the hypothesized model. The results was congruent with previous findings on relationships between these variables

(Burke et al., 2005; Burke et al., 2010; Diamantopoulou et al., 2010), especially the relationship between childhood ODD and disruptive behavior. The results from those longitudinal studies reveal that childhood ODD is a significant predictor of disruptive behavior and depression in adolescents. However, childhood ODD did not has direct effect on depression. This result was not congruent with those previous studies.

Regarding to developmental psychopathology, a sequential progression of one form of problem behavior occurs before the emergence of another. Adolescents progress through this sequence, they tend to maintain their prior problem behavior as behavior that is retained rather than replaced (Wenar & Kerig, 2006). Adolescents who have childhood ODD in their childhood period may have negative experiences with others regarding their problem behavior. Because

For another finding, childhood ODD did not has positive direct effect on depression. The finding was not consistent with previous studies (Burke et al., 2005; Burke et al., 2010; Diamantopoulou et al., 2010). One possible explanation is relationships between adolescents and their family members in Thai adolescents. In this study, most of adolescents live with families that consist of father, mother, and sibling. This characteristic of their family may make them having more emotional support than adolescents in previous studies in other countries. In addition, culture of child rearing in Thailand may be another reason of this different findings among adolescents in Thai and other countries. Regarding this reason, adolescents who have childhood ODD history may not develop depression.

Another possible explanation is informants issue. In this study, childhood ODD were assessed by the parents. Whereas, depression were assessed by adolescents. Although previous research had found that childhood ODD has positive association with depression by informants similar as this study design. For explanation the different finding, it might be perception of adolescents on their childhood experiences did not influencing their actual emotional problems such as depression. If adolescents did not have much negative experiences regarding their problem behavior in childhood period, adolescents may not increase depression regarding childhood ODD. The more or less of their childhood ODD may less important to them.

2.2 *Parenting behavior did not has direct effect on disruptive behavior ($\beta$ = -.12, p > .05) and depression ($\beta$ = .00, p > .05).*

According to the study findings, parenting behavior had a non-significant negative direct effect on disruptive behavior. This finding was not congruent with previous study. As previous study presented that parenting behavior is significantly associated with disruptive behavior (r = -.24, p <.01 in male and r = -.33, p <.01 in female) in adolescents (Chen & Simon-Morton, 2009). For the different direction of the relationship between parenting behavior and depression, one possible reason is that the perception of Thai parents on parenting behavior. Thai parents may perceived the control through guilt as positive parenting behavior. As researcher found that the score of control through guilt lower than other dimension (mean =

4.36, SD = 2.92). Whereas, respect for adolescent autonomy, consistency, child-centeredness, and detachment were higher mean as 15.85 (SD = 4.11), 16.02 (SD = 3.60), 16.04 (SD = 4.04), and 15.90 (SD = 4.07). Parenting behavior total scores mean as 68.17 (SD = 11.03). Another reason may be the informant issue. In this study, parenting behavior was assesses by parents' perception that may impact to the accuracy of the results. The value of path coefficient of relationship between parenting behavior and depression is needed to examine in further study because it close to zero. Future study should assess the parenting behavior by adolescent perception.

2.3 *Childhood ODD did not have indirect effect on disruptive behavior ($\beta$ = .01, p > .05) and depression ($\beta$ = .04, p > .05) via parenting behavior*.

According to the study findings, Childhood ODD did not have indirect effect on disruptive behavior and depression via parenting behavior. One possible reason is that the majority of participants had been diagnosed with ADHD (77.2%), which might have less childhood ODD when they were childhood period. Parents may focus to help them solved with another kind of disruptive behavior such as inattentiveness. The parenting behavior that the parent interacted with the adolescents may be positive parenting behavior than adolescents who have more conduct behavior or oppositional defiant disorder symptoms. Further study must be conducted in adolescents with conduct disorder or oppositional defiant disorder

separately to examine the influence of childhood ODD on depression and co-occurrence of disruptive behavior and depression.

2.4 *Family environment did not has negative direct effect on disruptive behavior ($\beta$ = -.01, p > .05), but family environment had a significant negative direct effect on depression ($\beta$ = -.24, p < .01).*

According to present study findings, family environment had a significant negative direct effect on depression only. The findings support only some direction of relationship in the hypothesized model, which indicated that family environment have a negative direct effect on depression.

For the supported path, it was congruent with previous studies such as Drabick et al. (2006) and Sourander & Helstelä, (2005). This finding support that Thai adolescents perceived the family environment similar to adolescents in other countries. They need more quality of family relationship to maintain their mental health. The better quality relationships and a more positive support environment within the family is one factor that influencing mental health and mental health problem especially depression.

For another path that did not support the hypothesized model. One possible explanation is about the culture of Thai family that may seem support any members of family whatever they are. Adolescent may be got some support from their family members although they have disruptive behavior. Therefore, family environment

may be not strong enough to negative direct effect on disruptive behavior in Thai adolescents.

2.5 *Deviant peer affiliation did not have positive direct effect on disruptive behavior and depression (*$\beta$ *= .08, p > .05 and* $\beta$ *= .06, p > .05, respectively).* The findings did not support hypotheses. One possible reason of the low relationship is characteristic of the deviant peer affiliation characteristic. The participant s in this study have deviant peer affiliation variable mean score as .97 (SD = .91). That means they associated with small numbers of closest friends who having problem behaviors. These deviant peer affiliation may not strongly influencing disruptive behavior and depression in adolescents. In addition, most of participants in this study is 13 years old. They are in early adolescent period that just learn to independent from their parents. Some of them, especially Thai early adolescents, parents and friends may be influencing their mental health problems such as depression. The results indicated that sample have low associating with close friends who have deviant/problem behavior.



2.6 *Social competence did not has direct effect on disruptive behavior (*$\beta$ *= .10, p > .05), but social competence had a significant negative direct effect on depression (*$\beta$ *= -.21, p < .05).*

From hypothesis, social competence is presumed to have a negative direct effect on disruptive behavior and depression. The finding supported only the

hypotheses which indicated social competence had a negative direct effect on depression.

However, social competence did not has negative direct effect on disruptive behavior. From the finding means that adolescents who have more social competence may have more disruptive behavior as well. One possible reason is about the “popularity-socialization” from some research hypothesis, finding, and explanation (Allen et al., 2005). Regarding that adolescents who have high social competence may have more disruptive behavior. From Allen et al. study, they found that popularity in adolescents takes on a twofold role, and predicting increases over time in both positive and negative behaviors. They tested the hypothesis with multi-method, longitudinal data obtained on 185 adolescents. Because social competence in this present study is defined as the perception of adolescent’s ability to engage in well social relations with other people, particularly with respect to getting along with others and forming close relationships. The explanation above seem could be used to explain this study finding about the relationship of social competence did not has negative direct effect on disruptive behavior.

In addition, an important dimension of adolescent peer relations is the behavioral similarity between individuals and their peer affiliations (Kandel, 1978; Poulin et al., 1997; Urberg et al., 1998). In addition, based on basic human needs, love and belonging are important needs for any human (Eby & Brown, 2005), including adolescents. From a developmental perspective, adolescents would like to

be a member of at least one peer group. Adolescents may be a member of a deviant peers group and those lead them to do more disruptive behavior. Regarding this explanation, social competence may had a positive direct effect on disruptive behavior.

2.7 *Deviant peer affiliation did not have positive indirect effect on disruptive behavior and negative direct effect on depression via social competence* ($\beta$ *= .01, p > .05 and* $\beta$ *= -.01, p > .05).*

Thus, such findings supported the direction of relationships between deviant peer affiliation on disruptive behavior via social competence in the hypothesized model. However, the relationships are low and non-significant.

On the other hand, this study found that the direction of relationship between deviant peer affiliation on depression via social competence was different from the hypothesis. Regarding to previous research, deviant peer affiliation had a positive indirect effect on depression via social competence.

One possible reason of the opposite direction of the relationship is about the perception on adolescents on their social competence and the characteristics of peers. Regarding this study, social competence is defined as perception of adolescent's ability to engage in well social relations with other people, particularly with respect to getting along with others and forming close relationships. Based on the hypothesis statement, adolescents who have the more score of social competence should be less depression. However, the results were opposite direction

from hypothesis. Adolescents who perceive they have high social competence and more deviant peer affiliation may have high depression together. This results revealed that further research should be considered about the characteristic of peers (such as quality of peers) in the social competence construct and the questionnaire together with perceive on peer acceptance. The limitation of social competence questionnaire is one reason of this conflict results.

**Limitation**

In the present study have limitations as follow:

1. The researcher has time limitation regarding academic study year. Numbers of cases that included in the analysis could have some effect on the significant of relationships among variables.

2. The instruments to measures some variables were used the first time within Thai context such as the Parent's Report. Thus, more testing psychometric properties should be tested in further research. In addition, the construct of variable such as social competence may limitation the information of variable be studied.

2. The conduct disorder symptoms may be needed to assess by more informants. Using the parents' perception to assess disruptive behavior was both a strength and a limitation. In real situations, parents are the most significant people who are usually concerned about their adolescents' behavioral problems. They often report their concerns about adolescent behavior to health care professions;

however, adolescents may not consider their behaviour to be problematic. Sometimes, parents may be unaware of their children's behaviour, especially, behavior such as fighting or vandalism. This means that parental perceptions of CD symptoms may not match behavior. Further study should assess behavior by interviewing more informants such as adolescents, parents and teachers.

**Implication for nursing science**

The findings of the relationships among selected factors and path model provides information for clinical research and may help mental health nurses and psychiatrists to design an appropriate intervention programs. Based on the findings, some significant implication for nursing practice can be proposed as follows:

The findings revealed that family environment and social competence are the important predictors of depression. The nursing implementation to promote family strengthen and improve adolescent social competence should be developed and tested.



Whereas, childhood ODD is the most important predictor of disruptive behavior in Thai adolescents. The implementation to prevent co-occurrence of disruptive behavior and depression should be considered since early years of life (childhood period).

Although the participants in this study were hospital patients, most of them were also studying at secondary school. Therefore, a preventive program for the co-

occurrence of disruptive behavior and depression should also be considered for adolescents who attend school.

**Recommendations for future research**

Based on the findings of the present study, the following recommendations for future research can be made as follows:

1. Research instruments are very important and high impact to the results. To improve and test the psychometric properties of the instruments, further study is needed.

2. A longitudinal study should be conducted to assess the co-occurrence of disruptive behavior and depression in adolescents both in clinical setting and in educational settings. The longitudinal study may be useful to gain a better understanding of other factors as well.

2. An intervention study to promote family environment and improve social competence in adolescents with disruptive behavior should be developed and tested. The major aim is to prevent co-occurrence of disruptive behavior and depression among adolescents.

3. The qualitative research should be carried out to explore concepts of parenting behavior within Thai context to improve our understanding regarding parenting behavior of Thai families.

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# APPENDIX

# APPENDIX A : Information sheet and ethical approval

**ข้อมูลสำหรับผู้มีส่วนร่วมในการวิจัย**

**ชื่อโครงการวิจัย** การมีปัญหาพฤติกรรมร่วมกับภาวะซึมเศร้าในวัยรุ่นไทย

**ชื่อผู้วิจัย** นางวัชรินทร์ วุฒิรณฤทธิ์

**ตำแหน่ง** นิสิตคณะพยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย

**สถานที่ติดต่อผู้วิจัย** คณะพยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย อาคารบรมราชชนนีศรีศตพรรษ ชั้น 11 ถนนพระราม 1 เขตปทุมวัน กรุงเทพฯ 10330

**หรือ** 70/352 หมู่บ้านฟ้าปิยรมย์ ต. บึงคำพร้อย อ. ลำลูกกา จ.ปทุมธานี 12150

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การวิจัยนี้ทำเพื่อศึกษาเกี่ยวกับการมีปัญหาพฤติกรรมและภาวะซึมเศร้าในวัยรุ่นไทย และปัจจัยที่ทำให้เกิดปัญหาดังกล่าว ประโยชน์ของการวิจัยนี้คือ ผลการศึกษาที่ได้จะช่วยให้พยาบาลมีความเข้าใจสภาพปัญหาและปัจจัยที่ทำให้เกิดการมีปัญหาพฤติกรรมร่วมกับภาวะซึมเศร้าในวัยรุ่นไทย สามารถนำผลการศึกษาไปเป็นข้อมูลในการวางแผนและพัฒนากิจกรรมการพยาบาล เพื่อดูแลและป้องกันการมีปัญหาพฤติกรรมร่วมกับภาวะซึมเศร้าสำหรับวัยรุ่น เพื่อช่วยให้วัยรุ่นได้รับการดูแลที่เหมาะสมกับความต้องการ ส่งผลต่อการมีสุขภาพจิตที่ดีต่อไป

ในการวิจัยครั้งนี้ ผู้มีส่วนร่วมในการวิจัยเป็นวัยรุ่นที่มีคุณสมบัติตามที่กำหนด คือ มีอายุ 13-17 ปี พูดคุยและอ่านภาษาไทยได้ ยินดีเข้าร่วมการวิจัยและได้รับอนุญาตจากผู้ปกครองให้เข้าร่วมการวิจัยครั้งนี้ และผู้ปกครองยินดีให้ความร่วมมือในการตอบแบบสอบถามด้วย จำนวนของวัยรุ่นที่จะเข้ามาเป็นผู้มีส่วนร่วมในการวิจัย ทั้งหมดมีจำนวน 330 คน ซึ่งเป็นวัยรุ่นที่มารับบริการที่หน่วยบริการทางสุขภาพจิตเด็กและวัยรุ่นในโรงพยาบาล/สถาบันบริการสุขภาพของรัฐ จำนวน 7 แห่งในกรุงเทพฯและภาคกลาง ภาคเหนือ ภาคตะวันออกเฉียงเหนือ และภาคใต้ การเก็บข้อมูลเป็นการเก็บข้อมูลโดยการให้ผู้มีส่วนร่วมในการวิจัยตอบแบบสอบถาม และเป็นการตอบแบบครั้งเดียว

แบบสอบถาม ประกอบไปด้วย (1). แบบสอบถามข้อมูลทั่วไป จำนวน 4 ข้อ (2). แบบประเมินภาวะซึมเศร้า จำนวน 20 ข้อ (3). แบบสอบถามความสามารถทางสังคมของวัยรุ่น จำนวน 6 ข้อ (4). แบบสอบถามสภาพแวดล้อมในครอบครัวด้านความสัมพันธ์ จำนวน 27 ข้อ (5).แบบสอบถามการพัวพันกับเพื่อนที่มีพฤติกรรมเบี่ยงเบน จำนวน 9 ข้อ รวมทั้งสิ้น 66 ข้อ ซึ่งจะใช้เวลาในการตอบแบบสอบถามประมาณ 40 นาที

ในระหว่างการตอบแบบสอบถาม หากผู้มีส่วนร่วมในการวิจัยรู้สึกเหนื่อยหรือรู้สึก ไม่สบายใจ ในระหว่างการตอบแบบสอบถาม ผู้มีส่วนร่วมในงานวิจัยสามารถหยุดพักการตอบสักครู่ได้ทุกเวลา โดยผู้วิจัยจะคอยให้การดูแลอำนวยความสะดวกให้พักและ/หรือดูแลให้ได้ระบายความรู้สึกและผ่อนคลาย

แบบสอบถามของแต่ละคนจะเป็นความลับ จะไม่มีผู้ใดรู้ว่าแบบสอบถามนี้เป็นของใคร ผู้มีส่วนร่วมในการวิจัยไม่ต้องกรอกชื่อ-นามสกุล เมื่อทำเสร็จแล้วให้นำแบบสอบถามใส่ซองที่เตรียมไว้ให้และส่งคืนกับผู้วิจัย

ข้อมูลที่ได้จากการตอบแบบสอบถามของผู้มีส่วนร่วมในการวิจัยจะถูกนำไปเก็บรวมกับข้อมูลของคนอื่นๆ โดยข้อมูลจะถูกเก็บเป็นความลับและผู้วิจัยจะใช้รหัสตัวเลขในแบบบันทึกข้อมูล หากผู้วิจัยตีพิมพ์ผลการศึกษา ผู้วิจัยจะไม่มีการระบุชื่อของผู้มีส่วนร่วมในการวิจัย ไม่ว่ากรณีใดๆ

การเข้าร่วมในการวิจัยของผู้มีส่วนร่วมในการวิจัยเป็นโดย**สมัครใจ** และมีสิทธิในการ**ปฏิเสธ**หรือสามารถ**ถอนตัว**จากการศึกษาได้ตลอดเวลา ทั้งนี้การปฏิเสธหรือถอนตัวจะไม่มีผลกระทบต่อผู้มีส่วนร่วมในการวิจัย และจะไม่มีผลต่อการได้รับบริการสุขภาพทั้งสิ้น

หากผู้มีส่วนร่วมในการวิจัยมีข้อสงสัยให้สอบถามเพิ่มเติมได้จากผู้วิจัย โดยสามารถติดต่อผู้วิจัยได้ตลอดเวลาที่ **นางวัชรินทร์ วุฒิรณฤทธิ์ คณะพยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย** หรือทางโทรศัพท์ 090-974-8865

การตอบแบบสอบถามจะจัดให้ตอบในห้องตรวจที่ว่างหรือกรณีที่ไม่มีห้องตรวจว่าง ผู้วิจัย/ผู้ช่วยวิจัยจะจัดโต๊ะและเก้าอี้ในบริเวณมุมหนึ่งของแผนกผู้ป่วยนอกเป็นสถานที่สำหรับให้ผู้มีส่วนร่วมในการวิจัยนั่งตอบแบบสอบถาม

การวิจัยครั้งนี้มีการมอบปากกา 1 ด้าม และสมุดบันทึก 1 เล่มเป็นของที่ระลึกแก่ผู้มีส่วนร่วมในการวิจัยเมื่อสิ้นสุดการตอบแบบสอบถาม

หากผู้มีส่วนร่วมในการวิจัยไม่ได้รับการปฏิบัติตามข้อมูลดังกล่าว สามารถร้องเรียนได้ที่ คณะกรรมการพิจารณาจริยธรรมการวิจัยในคน กลุ่มสหสถาบัน ชุดที่ 1 จุฬาลงกรณ์มหาวิทยาลัย ชั้น 4 อาคารสถาบัน 2 ซอยจุฬาลงกรณ์ 62 ถนนพญาไท เขตปทุมวัน กรุงเทพฯ 10330 โทรศัพท์ 0-2218-8147 หรือ 0-2218-8141 โทรสาร 0-2218-8147 E-mail: eccu@chula.ac.th

**ข้อมูลสำหรับผู้มีส่วนร่วมในการวิจัย**

**ชื่อโครงการวิจัย** การมีปัญหาพฤติกรรมร่วมกับภาวะซึมเศร้าในวัยรุ่นไทย

**ชื่อผู้วิจัย** นางวัชรินทร์ วุฒิรณฤทธิ์

**ตำแหน่ง** นิสิตคณะพยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย

**สถานที่ติดต่อผู้วิจัย** คณะพยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย อาคารบรมราชชนนีศรีศตพรรษ ชั้น 11 ถนนพระราม 1 เขตปทุมวัน กรุงเทพฯ 10330

**หรือ** 70/352 หมู่บ้านฟ้าปิยรมย์ ต. บึงคำพร้อย อ. ลำลูกกา จ.ปทุมธานี 12150

**โทรศัพท์มือถือ** 090-9748865 **E-mail**: vatwuth@yahoo.com

การวิจัยนี้ทำเพื่อศึกษาเกี่ยวกับการมีปัญหาพฤติกรรมและภาวะซึมเศร้าในวัยรุ่นไทย และปัจจัยที่ทำให้เกิดปัญหาดังกล่าว ประโยชน์ของการวิจัยนี้คือ ผลการศึกษาที่ได้จะช่วยให้พยาบาลมีความเข้าใจสภาพปัญหาและปัจจัยที่ทำให้เกิดการมีปัญหาพฤติกรรมร่วมกับภาวะซึมเศร้าในวัยรุ่นไทย สามารถนำผลการศึกษาไปเป็นข้อมูลในการวางแผนและพัฒนากิจกรรมการพยาบาล เพื่อดูแลและป้องกันการมีปัญหาพฤติกรรมร่วมกับภาวะซึมเศร้าสำหรับวัยรุ่น เพื่อช่วยให้วัยรุ่นได้รับการดูแลที่เหมาะสมกับความต้องการ ส่งผลต่อการมีสุขภาพจิตที่ดีต่อไป

ในการวิจัยครั้งนี้ ผู้มีส่วนร่วมในการวิจัยเป็นวัยรุ่นที่มีคุณสมบัติตามที่กำหนด คือ มีอายุ 13-17 ปี พูดคุยและอ่านภาษาไทยได้ ยินดีเข้าร่วมการวิจัยและได้รับอนุญาตจากผู้ปกครองให้เข้าร่วมการวิจัยครั้งนี้ และผู้ปกครองยินดีให้ความร่วมมือในการตอบแบบสอบถามด้วย จำนวนของวัยรุ่นที่จะเข้ามาเป็นผู้มีส่วนร่วมในการวิจัย ทั้งหมดมีจำนวน 330 คน ซึ่งเป็นวัยรุ่นที่มารับบริการที่หน่วยบริการทางสุขภาพจิตเด็กและวัยรุ่นในโรงพยาบาล/สถาบันบริการสุขภาพของรัฐ จำนวน 7 แห่งในกรุงเทพฯและภาคกลาง ภาคเหนือ ภาคตะวันออกเฉียงเหนือ และภาคใต้ การเก็บข้อมูลเป็นการเก็บข้อมูลโดยการให้ผู้มีส่วนร่วมในการวิจัยตอบแบบสอบถาม และเป็นการตอบแบบครั้งเดียว

แบบสอบถาม ประกอบไปด้วย (1). แบบสอบถามข้อมูลทั่วไป จำนวน 4 ข้อ (2). แบบประเมินภาวะซึมเศร้า จำนวน 20 ข้อ (3). แบบสอบถามความสามารถทางสังคมของวัยรุ่น จำนวน 6 ข้อ (4). แบบสอบถามสภาพแวดล้อมในครอบครัวด้านความสัมพันธ์ จำนวน 27 ข้อ (5).แบบสอบถามการพัวพันกับเพื่อนที่มีพฤติกรรมเบี่ยงเบน จำนวน 9 ข้อ รวมทั้งสิ้น 66 ข้อ ซึ่งจะใช้เวลาในการตอบแบบสอบถามประมาณ 40 นาที

ในระหว่างการตอบแบบสอบถาม หากผู้มีส่วนร่วมในการวิจัยรู้สึกเหนื่อยหรือรู้สึก ไม่สบายใจ ในระหว่างการตอบแบบสอบถาม ผู้มีส่วนร่วมในงานวิจัยสามารถหยุดพักการตอบสักครู่ได้ทุกเวลา โดยผู้วิจัยจะคอยให้การดูแลอำนวยความสะดวกให้พักและ/หรือดูแลให้ได้ระบายความรู้สึกและผ่อนคลาย

แบบสอบถามของแต่ละคนจะเป็นความลับ จะไม่มีผู้ใดรู้ว่าแบบสอบถามนี้เป็นของใคร ผู้มีส่วนร่วมในการวิจัยไม่ต้องกรอกชื่อ-นามสกุล เมื่อทำเสร็จแล้วให้นำแบบสอบถามใส่ซองที่เตรียมไว้ให้และส่งคืนกับผู้วิจัย

ข้อมูลที่ได้จากการตอบแบบสอบถามของผู้มีส่วนร่วมในการวิจัยจะถูกนำไปเก็บรวมกับข้อมูลของคนอื่นๆ โดยข้อมูลจะถูกเก็บเป็นความลับและผู้วิจัยจะใช้รหัสตัวเลขในแบบบันทึกข้อมูล หากผู้วิจัยตีพิมพ์ผลการศึกษา ผู้วิจัยจะไม่มีการระบุชื่อของผู้มีส่วนร่วมในการวิจัย ไม่ว่ากรณีใดๆ

การเข้าร่วมในการวิจัยของผู้มีส่วนร่วมในการวิจัยเป็นโดย**สมัครใจ** และมีสิทธิในการ**ปฏิเสธ**หรือสามารถ**ถอนตัว**จากการศึกษาได้ตลอดเวลา ทั้งนี้การปฏิเสธหรือถอนตัวจะไม่มีผลกระทบต่อผู้มีส่วนร่วมในการวิจัย และจะไม่มีผลต่อการได้รับบริการสุขภาพทั้งสิ้น

หากผู้มีส่วนร่วมในการวิจัยมีข้อสงสัยให้สอบถามเพิ่มเติมได้จากผู้วิจัย โดยสามารถติดต่อผู้วิจัยได้ตลอดเวลาที่ **นางวัชรินทร์ วุฒิรณฤทธิ์ คณะพยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย** หรือทางโทรศัพท์ 090-974-8865

การตอบแบบสอบถามจะจัดให้ตอบในห้องตรวจที่ว่างหรือกรณีที่ไม่มีห้องตรวจว่าง ผู้วิจัย/ผู้ช่วยวิจัยจะจัดโต๊ะและเก้าอี้ในบริเวณมุมหนึ่งของแผนกผู้ป่วยนอกเป็นสถานที่สำหรับให้ผู้มีส่วนร่วมในการวิจัยนั่งตอบแบบสอบถาม

การวิจัยครั้งนี้มีการมอบปากกา 1 ด้าม และสมุดบันทึก 1 เล่มเป็นของที่ระลึกแก่ผู้มีส่วนร่วมในการวิจัยเมื่อสิ้นสุดการตอบแบบสอบถาม

หากผู้มีส่วนร่วมในการวิจัยไม่ได้รับการปฏิบัติตามข้อมูลดังกล่าว สามารถร้องเรียนได้ที่ คณะกรรมการพิจารณาจริยธรรมการวิจัยในคน กลุ่มสหสถาบัน ชุดที่ 1 จุฬาลงกรณ์มหาวิทยาลัย ชั้น 4 อาคารสถาบัน 2 ซอยจุฬาลงกรณ์ 62 ถนนพญาไท เขตปทุมวัน กรุงเทพฯ 10330 โทรศัพท์ 0-2218-8147 หรือ 0-2218-8141 โทรสาร 0-2218-8147 E-mail: eccu@chula.ac.th

AF 02-12

**The Ethics Review Committee for Research Involving Human Research Subjects, Health Science Group, Chulalongkorn University**
Institute Building 2, 4 Floor, Soi Chulalongkorn 62, Phyathai Rd., Bangkok 10330, Thailand,
Tel: 0-2218-8147 Fax: 0-2218-8147 E-mail: eccu@chula.ac.th

**COA No. 207/2013**

## Certificate of Approval

**Study Title** No. 148.1/56 : CO-OCCURRENCE OF DISRUPTIVE BEHAVIOR AND DEPRESSION AMONG THAI ADOLESCENTS

**Principal Investigator** : MRS. VATCHARIN WUTHIRONARITH

**Place of Proposed Study/Institution** : Faculty of Nuring, Chulalongkorn University

The Ethics Review Committee for Research Involving Human Research Subjects, Health Science Group, Chulalongkorn University, Thailand, has approved constituted in accordance with the International Conference on Harmonization – Good Clinical Practice (ICH-GCP) and/or Code of Conduct in Animal Use of NRCT version 2000.

Signature: Prida Tasanapradit (Associate Professor Prida Tasanapradit, M.D.) Chairman

Signature: Nuntaree Chaichanawongsaroj (Assistant Professor Dr. Nuntaree Chaichanawongsaroj) Secretary

Date of Approval : 25 December 2013 Approval Expire date : 24 December 2014

**The approval documents including**

1) Research proposal
2) Patient/Participant Information Sheet and Informed Consent Form
3) Researcher
4) Questionnaire

Protocol No. 148.1/56
Date of Approval 25 DEC 2013
Approval Expire Date 24 DEC 2014

The approved investigator must comply with the following conditions:

1. *The research/project activities must end on the approval expired date of the Ethics Review Committee for Research Involving Human Research Subjects, Health Science Group, Chulalongkorn University (ECCU). In case the research/project is unable to complete within that date, the project extension can be applied one month prior to the ECCU approval expired date.*
2. *Strictly conduct the research/project activities as written in the proposal.*
3. *Using only the documents that bearing the ECCU's seal of approval with the subjects/volunteers (including subject information sheet, consent form, invitation letter for project/research participation (if available).*
4. *Report to the ECCU for any serious adverse events within 5 working days*
5. *Report to the ECCU for any change of the research/project activities prior to conduct the activities.*
6. *Final report (AF 03-12) and abstract is required for a one year (or less) research/project and report within 30 days after the completion of the research/project. For thesis, abstract is required and report within 30 days after the completion of the research/project.*
7. *Annual progress report is needed for a two- year (or more) research/project and submit the progress report before the expire date of certificate. After the completion of the research/project processes as No. 6.*

## เอกสารรับรองด้านจริยธรรมการทำวิจัยในมนุษย์

เลขที่ ๐๒๕/๒๕๕๖

**คณะกรรมการวิจัย และคณะกรรมการจริยธรรมการวิจัย โรงพยาบาลสวนสราญรมย์**

**ขอให้การรับรองว่า**

**ชื่องานวิจัย :** การมีปัญหาพฤติกรรมร่วมกับภาวะซึมเศร้าในวัยรุ่นไทย

**ผู้วิจัยหลัก :** นางวัชรินทร์ วุฒิรณฤทธิ์

**หน่วยงาน :** คณะพยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย

**เอกสารที่เกี่ยวข้อง :**

๑. โครงร่างงานวิจัย

๒. ใบยินยอมให้ทำการวิจัยในมนุษย์

๓. เครื่องมือที่ใช้ในการวิจัย

๔. เอกสารชี้แจงข้อมูลสำหรับผู้เข้าร่วมวิจัย

**เป็นการวิจัยที่มีลักษณะตรงตามเกณฑ์ของ** International Guidelines for Human Research Protection ได้แก่ Declaration of Helsinki, the Belmont Report, CIOMS Guidelines and the International Conference on Harmonization's Good Clinical Practice (ICH-GCP) **ทุกประการ**

**วันที่ยื่นพิจารณา :** ๕ พฤศจิกายน ๒๕๕๖ **เลขที่งานวิจัยที่ยื่นพิจารณา :** ๒๗/๒๕๕๖

**วันที่ได้รับการรับรอง :** ๖ ธันวาคม ๒๕๕๖

ลงนาม .....ประธานคณะกรรมการวิจัย

(นายแพทย์ธิติพันธ์ ธานีรัตน์)

ลงนาม .....ประธานคณะกรรมการจริยธรรมการวิจัย

(นายอัตถพงศ์ ถนิมพาสน์)

ลงนาม .....ผู้อำนวยการโรงพยาบาลจิตเวชนครราชสีมาราชนครินทร์

(นายแพทย์จุมภฏ พรมสีดา) รักษาการในตำแหน่ง ผู้อำนวยการโรงพยาบาลสวนสราญรมย์

เอกสารเลขที่ 4/2557

คณะกรรมการจริยธรรมการวิจัยในคน
โรงพยาบาลสวนปรุง

**โครงร่างวิจัย :** การมีปัญหาพฤติกรรมร่วมกับภาวะซึมเศร้าในวัยรุ่นไทย

**ผู้ดำเนินการวิจัยหลัก :** นางวัชรินทร์ วุฒิรณฤทธิ์

**สถานที่ดำเนินการวิจัย :** โรงพยาบาลสวนปรุง

**เอกสารที่พิจารณา :**

1. การมีปัญหาพฤติกรรมร่วมกับภาวะซึมเศร้าในวัยรุ่นไทย

คณะกรรมการจริยธรรมการวิจัยในคนโรงพยาบาลสวนปรุง ได้พิจารณาโครงร่างวิจัยแล้ว คณะกรรมการฯ พิจารณาในแง่จริยธรรมให้ดำเนินการศึกษาวิจัยเรื่องข้างต้นได้ ทั้งนี้โดยยึดตามเอกสารโครงร่างวิจัยเป็นหลัก

.....ประธานคณะกรรมการ
(นายสุรเชษฐ ผ่องธัญญา)

.....ผู้อำนวยการโรงพยาบาลสวนปรุง
(นายศิริศักดิ์ ธิติดิลกรัตน์)

COA No. 094/2014

IRB No. 499/56

INSTITUTIONAL REVIEW BOARD

Faculty of Medicine, Chulalongkorn University

1873 Rama 4 Road, Patumwan, Bangkok 10330, Thailand, Tel 662-256-4493 ext 14, 15

## Certificate of Approval

The Institutional Review Board of the Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand, has approved the following study which is to be carried out in compliance with the International guidelines for human research protection as Declaration of Helsinki, The Belmont Report, CIOMS Guideline and International Conference on Harmonization in Good Clinical Practice (ICH-GCP)

**Study Title** : Co-occurrence of disruptive behavior and depression among Thai adolescents.

**Study Code** :

**Principal Investigator** : Mrs. Vatcharin Wuthironarith

**Study Center** : Faculty of Nursing, Chulalongkorn University.

**Review Method** : Full board

**Continuing Report** : At least once annually or submit the final report if finished.

**Document Reviewed** :

1. Protocol Version 2.0, January 9, 2014
2. Protocol Synopsis Version 3.0 Date Feb 4, 2014
3. Information sheet for research participant Version 2.0, January 9, 2014
4. Information sheet for the legal representative / guardian Version 2.0, January 9, 2014
5. Informed consent to participate in research projects for volunteers Version 2.0, January 9, 2014
6. Informed consent to participate in the research for the legal representative / guardian Version 2.0, January 9, 2014
7. Research Tool Series 1 questionnaire for adolescents as respondents Version 1.0 Date Oct 9, 2013

8. Research Tool Series 2 Questionnaire for the parents as respondents Version 1.0 Date Oct 9, 2013
9. Principal investigator' Curriculum Vitae

Signature:..... Signature:.....

(Emeritus Professor Tada Sueblinvong MD) (Assistant Professor Prapapan Rajatapiti MD, PhD)

Chairperson Member and Secretary

The Institutional Review Board Secretary The Institutional Review Board

Date of Approval : February 6, 2014

Approval Expire Date : February 5, 2015

Approval granted is subject to the following conditions: (see back of this Certificate)

RL 01_2555

ที่ IRB/RTA ๐๒๕/2557

**คณะอนุกรรมการพิจารณาโครงการวิจัย กรมแพทย์ทหารบก**
317 ถนนราชวิถี เขต ราชเทวี กรุงเทพฯ 10400

รหัสโครงการ: Q024q/56

**ชื่อโครงการวิจัย :** การมีปัญหาพฤติกรรมร่วมภาวะซึมเศร้าในวัยรุ่นไทย
[Co-occurrence of disruptive behavior and depression among Thai adolescents.]

**เลขที่โครงการวิจัย :** -

**ชื่อผู้วิจัยหลัก:** นางวัชรินทร์ วุฒิรณฤทธิ์

**สังกัดหน่วยงาน :** นิสิตหลักสูตรพยาบาลศาสตรดุษฎีบัณฑิต

**สถานที่ทำการวิจัย:** จุฬาลงกรณ์มหาวิทยาลัย

**เอกสารรับรอง :**

(1) โครงร่างการวิจัยฉบับภาษาไทย ฉบับที่ 2 วันที่ 2 มกราคม 2557
(2) เอกสารชี้แจงข้อมูลแก่ผู้เข้าร่วมโครงการวิจัย ฉบับที่ 2 วันที่ 2 มกราคม 2557
(3) หนังสือแสดงเจตนายินยอมเข้าร่วมการวิจัย ฉบับที่ 2 วันที่ 2 มกราคม 2557
(4) แบบสอบถามสำหรับวัยรุ่นเป็นผู้ตอบแบบสอบถาม ฉบับที่ 2 วันที่ 2 มกราคม 2557
(5) แบบประเมินภาวะซึมเศร้า ฉบับที่ 2 วันที่ 2 มกราคม 2557
(6) แบบสอบถามความสามารถทางสังคมวัยรุ่น ฉบับที่ 2 วันที่ 2 มกราคม 2557
(7) แบบสอบถามสภาพแวดล้อมในครอบครัวด้านความสัมพันธ์ ฉบับที่ 2 วันที่ 2 มกราคม 2557
(8) แบบสอบถามการพัวพันกับเพื่อนที่มีพฤติกรรมเบี่ยงเบน ฉบับที่ 2 วันที่ 2 มกราคม 2557
(9) แบบสอบถามสำหรับผู้ปกครอง ฉบับที่ 2 วันที่ 2 มกราคม 2557
(10) แบบสอบถามประวัติการมีพฤติกรรมดื้อต่อต้านในวัยเด็ก ฉบับที่ 2 วันที่ 2 มกราคม 2557
(11) แบบสอบถามเพื่อประเมินปัญหาพฤติกรรมในเด็กและวัยรุ่นสำหรับผู้ปกครอง ฉบับที่ 2 วันที่ 2 มกราคม 2557
(12) แบบสอบถามพฤติกรรมของผู้ปกครอง ฉบับที่ 2 วันที่ 2 มกราคม 2557
(13) ประวัติย่อ นางวัชรินทร์ วุฒิรณฤทธิ์ ฉบับที่ 2 วันที่ 2 มกราคม 2557
(14) ประวัติย่อ รศ.ดร.จินตนา ยูนิพันธุ์ ฉบับที่ 2 วันที่ 2 มกราคม 2557
(15) ประวัติย่อ พ.ท.หญิง วรัญญา โลสุยะ

RL 01_2555

ที่ IRB/RTA 016/2557

**คณะอนุกรรมการพิจารณาโครงการวิจัย กรมแพทย์ทหารบก**

317 ถนนราชวิถี เขต ราชเทวี กรุงเทพฯ 10400

รหัสโครงการ: Q024q/56

**ชื่อโครงการวิจัย :** การมีปัญหาพฤติกรรมร่วมภาวะซึมเศร้าในวัยรุ่นไทย
[Co-occurrence of disruptive behavior and depression among Thai adolescents.]

**เลขที่โครงการวิจัย :** -

**ชื่อผู้วิจัยหลัก:** นางวัชรินทร์ วุฒิรณฤทธิ์

**สังกัดหน่วยงาน :** นิสิตหลักสูตรพยาบาลศาสตรดุษฎีบัณฑิต

**สถานที่ทำการวิจัย:** จุฬาลงกรณ์มหาวิทยาลัย

**เอกสารรับรอง :**

(1) โครงร่างการวิจัยฉบับภาษาไทย ฉบับที่ 2 วันที่ 2 มกราคม 2557
(2) เอกสารชี้แจงข้อมูลแก่ผู้เข้าร่วมโครงการวิจัย ฉบับที่ 2 วันที่ 2 มกราคม 2557
(3) หนังสือแสดงเจตนายินยอมเข้าร่วมการวิจัย ฉบับที่ 2 วันที่ 2 มกราคม 2557
(4) แบบสอบถามสำหรับวัยรุ่นเป็นผู้ตอบแบบสอบถาม ฉบับที่ 2 วันที่ 2 มกราคม 2557
(5) แบบประเมินภาวะซึมเศร้า ฉบับที่ 2 วันที่ 2 มกราคม 2557
(6) แบบสอบถามความสามารถทางสังคมวัยรุ่น ฉบับที่ 2 วันที่ 2 มกราคม 2557
(7) แบบสอบถามสภาพแวดล้อมในครอบครัวด้านความสัมพันธ์ ฉบับที่ 2 วันที่ 2 มกราคม 2557
(8) แบบสอบถามการพัวพันกับเพื่อนที่มีพฤติกรรมเบี่ยงเบน ฉบับที่ 2 วันที่ 2 มกราคม 2557
(9) แบบสอบถามสำหรับผู้ปกครอง ฉบับที่ 2 วันที่ 2 มกราคม 2557
(10) แบบสอบถามประวัติการมีพฤติกรรมดื้อต่อต้านในวัยเด็ก ฉบับที่ 2 วันที่ 2 มกราคม 2557
(11) แบบสอบถามเพื่อประเมินปัญหาพฤติกรรมในเด็กและวัยรุ่นสำหรับผู้ปกครอง ฉบับที่ 2 วันที่ 2 มกราคม 2557
(12) แบบสอบถามพฤติกรรมของผู้ปกครอง ฉบับที่ 2 วันที่ 2 มกราคม 2557
(13) ประวัติย่อ นางวัชรินทร์ วุฒิรณฤทธิ์ ฉบับที่ 2 วันที่ 2 มกราคม 2557
(14) ประวัติย่อ รศ.ดร.จินตนา ยูนิพันธุ์ ฉบับที่ 2 วันที่ 2 มกราคม 2557
(15) ประวัติย่อ พ.ท.หญิง วรัญญา โลสุยะ

# APPENDIX B : The example of the instruments

**เครื่องมือวิจัย**

**ชุดที่ 1**

**แบบสอบถามสำหรับวัยรุ่นเป็นผู้ตอบแบบสอบถาม**

**แบบสอบถามนี้ประกอบด้วย 5 ตอน ดังนี้:**

**ตอนที่ 1 แบบสอบถามข้อมูลทั่วไป**

**ตอนที่ 2 แบบประเมินภาวะซึมเศร้า**

**ตอนที่ 3 แบบสอบถามความสามารถทางสังคมของวัยรุ่น**

**ตอนที่ 4 แบบสอบถามสภาพแวดล้อมในครอบครัวด้านความสัมพันธ์**

**ตอนที่ 5 แบบสอบถามการพัวพันกับเพื่อนที่มีพฤติกรรมเบี่ยงเบน**

**เครื่องมือวิจัย**

**ชื่อ โครงการวิจัย:** **การมีปัญหาพฤติกรรมร่วมกับภาวะซึมเศร้าในวัยรุ่นไทย**

**ชื่อผู้วิจัย:** **นางวัชรินทร์ วุฒิรณฤทธิ์**

**ตำแหน่ง:** **นิสิตคณะพยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย**

**สถานที่ติดต่อผู้วิจัย:** **คณะพยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย**

**อาคารบรมราชชนนีศรีศตพรรษ ชั้น 11 ถนนพระราม 1 เขตปทุมวัน กรุงเทพฯ 10330**

**โทรศัพท์มือถือ:** **09-0974-8865** **E-mail: vatwuth@yahoo.com**

**สำหรับเจ้าหน้าที่: From OPD Card**

☐ ADHD ☐ CD ☐ ODD ☐อื่นๆ ระบุ.....

Diagnosed Date...../...../.....

Setting No.....วันที่เก็บข้อมูลวันที่...../...../.....

**แบบสอบถามสำหรับวัยรุ่นเป็นผู้ตอบแบบสอบถาม**

**ตอนที่ 1 แบบสอบถามข้อมูลทั่วไป**

**คำชี้แจง โปรดทำเครื่องหมาย✓ลงในช่อง□หน้าข้อความที่ตรงกับความจริงเกี่ยวกับคุณ**

1. **เพศ: □(1) ชาย □(2)หญิง**
2. **เกิดวันที่.....เดือน.....พ.ศ.....**
3. **การศึกษา:**

**3.1 กำลังศึกษาอยู่ชั้น: □(1) ประถมศึกษาปีที่.....□(2) มัธยมศึกษาปีที่.....**

**□(3) ปวช. ปีที่..... □(4) อื่นๆ ระบุ.....**

**3.2 ไม่ได้ศึกษาแล้วโดยสำเร็จการศึกษาชั้นสูงสุดคือ**

**□(1) ประถมศึกษาปีที่.....□(2) มัธยมศึกษาปีที่.....**

**□(3) ปวช. ปีที่..... □(4) อื่นๆ ระบุ.....**

**3.3 ผลการเรียนครั้งล่าสุดได้เกรดเฉลี่ย:**

**□(1) น้อยกว่า 2.00 □(2)2.00 ถึง 2.49**

**□(3) 2.50 ถึง 2.99 □(4) 3.00 หรือมากกว่า**

4. **สมาชิกในครอบครัวที่อาศัยอยู่ในบ้านเดียวกันในปัจจุบันมีจำนวน.....คน ได้แก่ (เลือกตอบได้มากกว่า 1 ข้อ)**

**□(1) บิดา □(2) มารดา □(3) พี่/น้อง**

**□(4) บิดาเลี้ยง □(5) มารดาเลี้ยง □(6) ญาติ**

**□(7) อื่นๆ ระบุ.....**

**ตอนที่ 2:แบบประเมินภาวะซึมเศร้า**

**คำแนะนำในการตอบ: คุณมีความรู้สึกดังต่อไปนี้บ่อยเพียงใดใน 1 สัปดาห์ที่ผ่านมา กรุณากา X ลงในช่องที่ตรงกับความรู้สึกของคุณมากที่สุด**

**ไม่เลย หมายความว่า ความรู้สึกนั้นเกิดน้อยกว่า 1 วันในรอบสัปดาห์ที่ผ่านมา**

**นานๆ ครั้ง หมายความว่า ความรู้สึกนั้นเกิดขึ้น 1 – 2 วันในรอบสัปดาห์ที่ผ่านมา**

**บ่อยๆ หมายความว่า ความรู้สึกนั้นเกิดขึ้น 3-4 วันในรอบสัปดาห์ที่ผ่านมา**

**ตลอดเวลา หมายความว่า ความรู้สึกนั้นเกิดขึ้น 5-7 วันในรอบสัปดาห์ที่ผ่านมา**

| ในระยะ 1 สัปดาห์ที่ผ่านมา | ไม่เลย (น้อยกว่า 1 วัน) | นานๆ ครั้ง (1 - 2 วัน) | บ่อยๆ (3 – 4 วัน) | ตลอดเวลา (5 – 7 วัน) |
|---|---|---|---|---|
| 1. ฉันรู้สึกหงุดหงิดง่าย | | | | |
| 2. ฉันรู้สึกเบื่ออาหาร | | | | |
| 3. ฉันไม่สามารถขจัดความเศร้าออกจากใจได้ แม้จะมีคนคอยช่วยเหลือก็ตาม | | | | |
| 4. ฉันรู้สึกว่าตนเองดีพอๆ กับคนอื่น | | | | |
| 5. ฉันไม่มีสมาธิ | | | | |
| 6. ฉันรู้สึกหดหู่ | | | | |
| 7. ทุกๆ สิ่งที่ฉันกระทำจะต้องฝืนใจ | | | | |
| 8. ฉันมีความหวังเกี่ยวกับอนาคต | | | | |
| 9. ฉันรู้สึกว่าชีวิตมีแต่สิ่งล้มเหลว | | | | |
| 10. ฉันรู้สึกหวาดกลัว | | | | |
| 11. ฉันนอนไม่ค่อยหลับ | | | | |
| 12. ฉันมีความสุข | | | | |
| 13. ฉันไม่ค่อยอยากคุยกับใคร | | | | |
| 14. ฉันรู้สึกเหงา | | | | |
| 15. ผู้คนทั่วไปไม่ค่อยเป็นมิตรกับฉัน | | | | |
| 16. ฉันรู้สึกว่าชีวิตนี้สนุกสนาน | | | | |
| 17. ฉันร้องไห้ | | | | |

| ในระยะ 1 สัปดาห์ที่ผ่านมา | ไม่เลย (น้อยกว่า 1 วัน) | นานๆ ครั้ง (1 - 2 วัน) | บ่อยๆ (3 – 4 วัน) | ตลอดเวลา (5 – 7 วัน) |
|---|---|---|---|---|
| 18. ฉันรู้สึกเศร้า | | | | |
| 19. ผู้คนรอบข้างไม่ชอบฉัน | | | | |
| 20. ฉันรู้สึกท้อถอยในชีวิต | | | | |
| รวม | | | | |

**ตอนที่ 3 แบบสอบถามความสามารถทางสังคมของวัยรุ่น**

**วิธีทำ แบบสอบถามนี้เป็นเพียงแบบสำรวจ ไม่ใช่แบบทดสอบ ไม่มีคำตอบใดถูก หรือผิด เนื่องจากวัยรุ่นแต่ละคนมีความแตกต่างกัน พวกคุณแต่ละคนอาจจะให้คำตอบที่แตกต่างกันได้ จากข้อความ “ฉันเป็นคนแบบใด” เราต้องการทราบว่าข้อความแต่ละข้อคล้ายคลึงกับคุณหรือไม่ โดยให้คุณทำเครื่องหมาย x ในช่องที่ตรงหรือใกล้เคียงกับคุณดังนี้**

**ฉันเป็นคนแบบใด**

| ข้อ | | ไม่จริงอย่างที่สุดสำหรับฉัน | ค่อนข้างไม่จริงสำหรับฉัน | ค่อนข้างจริงสำหรับฉัน | จริงอย่างที่สุดสำหรับฉัน |
|---|---|---|---|---|---|
| 1 | ฉันรู้สึกว่าการมีเพื่อนเป็นเรื่องยาก | | | | |
| 2 | ฉันมีเพื่อนมากมาย | | | | |
| 3 | ฉันอยากมีเพื่อนมากกว่านี้ | | | | |
| 4 | ฉันมักจะทำกิจกรรมกับเพื่อนมากมาย | | | | |
| 5 | ฉันหวังว่าจะมีคนรุ่นเดียวกันชื่นชอบฉันมากกว่านี้ | | | | |
| 6 | ฉันเป็นที่ยอมรับของเพื่อน | | | | |

**ตอนที่ 4 แบบสอบถามสภาพแวดล้อมในครอบครัวด้านความสัมพันธ์**

**คำชี้แจง: แบบสอบถามฉบับนี้มีเนื้อหาเกี่ยวกับครอบครัว ให้คุณตัดสินว่าประโยคใดต่อไปนี้เป็นจริงหรือ ไม่เป็นจริงเกี่ยวกับครอบครัวของคุณ**

**หากคุณคิดว่า ประโยคใด *เป็นจริง* หรือส่วนใหญ่แล้ว*เป็นจริง*เกี่ยวกับครอบครัวของคุณ ให้ทำเครื่องหมาย x ลงในช่องที่เขียนว่า T (เป็นจริง)**

**หากคุณคิดว่าประโยคใด *ไม่เป็นจริง*หรือส่วนใหญ่แล้ว*ไม่เป็นจริง*เกี่ยวกับครอบครัวของคุณ**

**ให้ทำเครื่องหมาย x ลงในช่องที่เขียนว่า F (ไม่เป็นจริง)**

| | ประโยค | T | F |
|---|---|---|---|
| | | เป็นจริง | ไม่เป็นจริง |
| 1 | สมาชิกในครอบครัวต่างช่วยเหลือเกื้อกูลและสนับสนุนซึ่งกันและกัน | | |
| 2 | สมาชิกในครอบครัวมักจะเก็บงำความรู้สึกไว้กับตัวเอง | | |
| 3 | สมาชิกในครอบครัวทะเลาะกันบ่อยในครอบครัว | | |
| ... | ..... | | |
| 26 | บ่อยครั้งที่สมาชิกในครอบครัวมีการพูดคุยกันเรื่องสัพเพเหระที่ไม่ได้มีประเด็นเจาะจงล่วงหน้า | | |
| 27 | สมาชิกในครอบครัวเชื่อว่าการใช้น้ำเสียงดุดันไม่ได้ช่วยให้เกิดประโยชน์อะไรเลย | | |

**ตอนที่ 5 แบบสอบถามการพัวพันกับเพื่อนที่มีพฤติกรรมเบี่ยงเบน**

**คำแนะนำ: กรุณาตอบคำถามต่อไปนี้เกี่ยวกับจำนวนเพื่อนสนิทที่สุดของคุณ 5 คนที่แสดงพฤติกรรมเบี่ยงเบนในช่วงหนึ่งเดือนที่ผ่านมา ขอให้คุณใส่เครื่องหมาย √ ในช่องที่ตรงกับจำนวนเพื่อนสนิทของคุณที่มีพฤติกรรมในแต่ละข้อต่อไปนี้**

**0 = ไม่มีเพื่อนสนิทที่สุดคนใดเลยที่มีพฤติกรรมเบี่ยงเบน**

**1 = มีเพื่อนสนิทที่สุด 1 คนที่มีพฤติกรรมเบี่ยงเบน**

**2 = มีเพื่อนสนิทที่สุด 2 คนที่มีพฤติกรรมเบี่ยงเบน**

**3 = มีเพื่อนสนิทที่สุด 3 คนที่มีพฤติกรรมเบี่ยงเบน**

**4 = มีเพื่อนสนิทที่สุด 4 คนที่มีพฤติกรรมเบี่ยงเบน**

**4 = มีเพื่อนสนิทที่สุด 5 คนที่มีพฤติกรรมเบี่ยงเบน**

| ข้อคำถาม | 0 | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| 1. มีปัญหามักใช้กำลังในการต่อสู้ | | | | | | |
| 2. มีพฤติกรรมที่สร้างปัญหามากมาย | | | | | | |
| 3. หยิบฉวยสิ่งของที่ไม่ใช่ของตน | | | | | | |
| 4. เข้ากับผู้ใหญ่ไม่ได้ | | | | | | |
| 5. มีกรณีกระทำความผิดทางกฎหมาย | | | | | | |
| 6. ทุจริตการสอบที่โรงเรียน | | | | | | |
| 7. ตั้งใจทำลายหรือทำให้สิ่งของผู้อื่นเสียหาย | | | | | | |
| 8. ทำร้ายหรือขู่ว่าจะทำร้ายผู้อื่นโดยไม่มีเหตุผล | | | | | | |
| 9. แนะให้คุณทำสิ่งที่ผิดกฎหมาย | | | | | | |

# เครื่องมือวิจัย

# ชุดที่ 2

## แบบสอบถามสำหรับผู้ปกครองเป็นผู้ตอบแบบสอบถาม

**แบบสอบถามนี้ประกอบด้วย 4 ตอน ดังนี้:**

ตอนที่ 1 แบบสอบถามข้อมูลทั่วไป

ตอนที่ 2 แบบสอบถามประวัติการมีปัญหาพฤติกรรมดื้อต่อต้านในวัยเด็ก

ตอนที่ 3 แบบสอบถามเพื่อประเมินปัญหาพฤติกรรมในเด็กและวัยรุ่นสำหรับผู้ปกครอง

ตอนที่ 4 แบบสอบถามพฤติกรรมของผู้ปกครอง

**แบบสอบถามสำหรับผู้ปกครองเป็นผู้ตอบ**

**ตอนที่ 1. ข้อมูลทั่วไปเกี่ยวกับผู้ปกครอง**

**คำชี้แจง** โปรดทำเครื่องหมาย√ลงในช่อง□หน้าข้อความที่ตรงกับความจริงเกี่ยวกับตัวท่าน

1) เพศ:□(1) ชาย □(2)หญิง

2) เกิดวันที่……เดือน……พ.ศ……..……..

3) สถานภาพสมรส:

□(1) คู่ (อยู่กินกับสามี/ภรรยา) □(2) หย่า □(3) แยกกันอยู่เพราะมีปัญหาในครอบครัว

□(4) แยกกันอยู่เพราะต้องทำงานกันคนละที่ □(5) อื่นๆ ระบุ.....

4) ความสัมพันธ์ของท่านกับวัยรุ่นที่เข้าร่วมการวิจัยครั้งนี้

□ (1) บิดา □(2) มารดา □(3) อื่นๆ ระบุ.....

5) ท่านจบการศึกษา:

□(1) ประถมศึกษา □(5) ปริญญาตรีหรือเทียบเท่า

□(2) มัธยมศึกษา □(6) สูงกว่าปริญญาตรี

□(3) ปวช./ปวส. □(7) อื่นๆ ระบุ.....

□(4) อนุปริญญาหรือเทียบเท่า

6) ท่านมีโรคประจำตัวทางจิตใจ/พฤติกรรมหรือไม่

□(1) มี □(2)ไม่มี

ถ้ามีโปรดระบุชนิดของโรค เลือกได้มากกว่า 1 ข้อ

□(1) ซึมเศร้า □(2) ก้าวร้าว □(3) ติดสุรา □(4) สมาธิสั้น

□(5) อื่นๆ ระบุ.....

**ตอนที่ 2 แบบสอบถามประวัติการมีปัญหาพฤติกรรมดื้อต่อต้านในวัยเด็ก**

**คำชี้แจง** โปรดให้ข้อมูลเกี่ยวกับวัยรุ่นในปกครองของท่านซึ่งเป็นผู้ที่เข้าร่วมการวิจัยครั้งนี้ กรุณาทำเครื่องหมาย √ ลงในช่องที่ตรงกับการมีปัญหาพฤติกรรมในวัยเด็ก (ช่วงอายุ 6 – 8 ปี) ของวัยรุ่นที่เข้าร่วมการวิจัย โดย

| | |
|---|---|
| ไม่มี | หมายถึง ไม่เคยมีปัญหาพฤติกรรมดื้อต่อต้านในวัยเด็ก |
| มีนานๆ ครั้ง | หมายถึง ในวัยเด็กเคยมีปัญหาพฤติกรรมดื้อต่อต้านนานๆ ครั้ง |
| มีบางครั้ง | หมายถึง ในวัยเด็กเคยมีปัญหาพฤติกรรมดื้อต่อต้านเป็นบางครั้ง |
| มีเกือบเป็นประจำ | หมายถึง ในวัยเด็กเคยมีปัญหาพฤติกรรมดื้อต่อต้านเกือบเป็นประจำ |
| มีเป็นประจำ | หมายถึง ในวัยเด็กเคยมีปัญหาพฤติกรรมดื้อต่อต้านเป็นประจำทุกวัน |

**บุตรวัยรุ่นของท่าน (หรือวัยรุ่นในปกครอง) ที่เข้าร่วมการวิจัยนี้เคยมีปัญหาพฤติกรรมดื้อต่อต้านในวัยเด็กหรือไม่**

☐(0)ไม่มี ☐(1) มีนานๆ ครั้ง ☐(2) มีบางครั้ง

☐(3) มีเกือบเป็นประจำ ☐(4) มีเป็นประจำ

**ตอนที่ 3 แบบสอบถามเพื่อประเมินปัญหาพฤติกรรมในเด็กและวัยรุ่นสำหรับผู้ปกครอง**

โปรดทำเครื่องหมาย √ ในช่องวงกลมOที่ตรงกับพฤติกรรมของวัยรุ่นในช่วงหนึ่งเดือนที่ผ่านมา กรุณาพิจารณาพฤติกรรมของวัยรุ่นเฉพาะเวลาที่อยู่บ้านหรือในชุมชน ไม่ต้องคำนึงถึงพฤติกรรมของวัยรุ่นที่มีต่อครูหรือเพื่อนที่โรงเรียน

| | ไม่มีเลยในช่วงเดือนที่ผ่านมา | 1 ถึง 2 ครั้ง ในช่วงเดือนที่ผ่านมา | 3 ถึง 4 ครั้ง ในเดือนที่ผ่านมา | 2 ถึง 6 ครั้ง ต่อสัปดาห์ | 1 ครั้ง ต่อวัน | 2 ถึง 5 ครั้งต่อวัน | 6 ถึง 9 ครั้ง ต่อวัน | 10 ครั้ง หรือมากกว่าต่อวัน |
|---|---|---|---|---|---|---|---|---|
| **ส่วนที่ 1 พฤติกรรมต่อผู้ใหญ่ (พ่อ แม่ ปู่ย่า ตายาย พี่เลี้ยง หรือผู้ใหญ่อื่นๆ) ในบ้านและชุมชน** | | | | | | | | |
| 1.โต้เถียงกับผู้ใหญ่ | O | O | O | O | O | O | O | O |
| 2.โกรธหรืออารมณ์เสียใส่ผู้ใหญ่เวลาไม่ได้ดั่งใจ (พูดจาอวดดี) | O | O | O | O | O | O | O | O |
| 3.ไม่เชื่อฟังผู้ใหญ่หรือกฎเกณฑ์ | O | O | O | O | O | O | O | O |
| 4. ตั้งใจทำความรำคาญให้ผู้ใหญ่ | O | O | O | O | O | O | O | O |
| 5.โทษผู้ใหญ่เวลาตัวเองทำผิดพลาดหรือทำตัวไม่เหมาะสม | O | O | O | O | O | O | O | O |
| 6. รำคาญ หรือหงุดหงิดกับการกระทำของผู้ใหญ่ | O | O | O | O | O | O | O | O |

**ตอนที่ 4 แบบสอบถามพฤติกรรมของผู้ปกครอง**

**คำแนะนำ:** ประโยคต่อไปนี้เป็นคำถามเกี่ยวกับกิจกรรมที่ผู้ปกครองและเด็กวัยรุ่นทำร่วมกัน แต่ละคำถามมีเพียงหนึ่งคำตอบที่ตรงกับสิ่งที่ท่านทำจริง ผู้ปกครองแต่ละท่านและเด็กวัยรุ่นแต่ละคนมีความแตกต่างกัน ดังนั้นก่อนตอบคำถามแต่ละคำถามท่านควรคำนึงถึงสิ่งที่ท่านได้ปฏิบัติจริงในช่วงที่บุตรของท่านมีอายุ 13 ปี เป็นต้นมา

| คำถาม | สิ่งที่ฉันเป็นจริงๆ | | | | | | |
|---|---|---|---|---|---|---|---|
| | ไม่เคยเลย | แทบจะไม่เคย | นานๆครั้ง | บางครั้ง | บ่อยๆ | เกือบสม่ำเสมอ | สม่ำเสมอ |
| 1. ฉันถามคนอื่นๆว่าลูกทำอะไรบ้างตอนที่ลูกไม่ได้อยู่กับฉัน | | | | | | | |
| 2. ฉันเลี่ยงที่จะพูดคุยกับลูกหลังจากที่ลูกทำให้ฉันไม่พอใจ | | | | | | | |
| 3. ฉันตัดสินใจร่วมกับลูกในเรื่องของลูก | | | | | | | |
| 4. ฉันคอยดูว่าลูกได้ทำในสิ่งที่ฉันบอก | | | | | | | |
| 5. ฉันมองข้ามพฤติกรรมที่ไม่เหมาะสมของลูก เช่น พูดสอดแทรก แซงคิว | | | | | | | |
| 6. ฉันลืมกฎเกณฑ์ที่ได้ตั้งไว้ | | | | | | | |
| 7. ฉันจะบอกให้ลูกรู้เกี่ยวกับทุกสิ่งที่ฉันได้ทำให้เขาเมื่อฉันต้องการให้ลูกเชื่อฟัง | | | | | | | |

| คำถาม | สิ่งที่ฉันเป็นจริงๆ | | | | | | |
|---|---|---|---|---|---|---|---|
| | ไม่เคยเลย | แทบจะไม่เคย | นานๆครั้ง | บางครั้ง | บ่อยๆ | เกือบสม่ำเสมอ | สม่ำเสมอ |
| 8. ฉันให้ลูกช่วยฉันตัดสินใจในสิ่งที่จะมีผลกระทบกับตัวเขาเอง | | | | | | | |
| 9. ฉันกำหนดขอบเขตของกิจกรรมที่เสี่ยงจะเกิดปัญหา เช่น การพาไปงานพิธี, กิจกรรมโลดโผน เป็นต้น เพื่อช่วยลดปัญหาที่อาจเกิดขึ้นกับลูก | | | | | | | |
| 10. ฉันคอยเตือนลูกเกี่ยวกับพฤติกรรมที่ไม่ดีของเขาในอดีต | | | | | | | |
| 11. ฉันมีความสุขเวลาที่ได้ฟังลูกพูดและทำกิจกรรมร่วมกับลูก | | | | | | | |
| 12. ฉันตระหนักถึงความต้องการความเป็นส่วนตัวของลูก | | | | | | | |
| 13. ฉันให้ลูกช่วยฉันตัดสินใจในสิ่งที่จะมีผลกระทบกับตัวเขาเอง | | | | | | | |

| คำถาม | สิ่งที่ฉันเป็นจริงๆ | | | | | | |
|---|---|---|---|---|---|---|---|
| | ไม่เคยเลย | แทบจะไม่เคย | นานๆครั้ง | บางครั้ง | บ่อยๆ | เกือบสม่ำเสมอ | สม่ำเสมอ |
| 14. ฉันกำหนดขอบเขตของกิจกรรมที่เสี่ยงจะเกิดปัญหา เช่น การพาไปงานพิธี, กิจกรรมโลดโผน เป็นต้น เพื่อช่วยลดปัญหาที่อาจเกิดขึ้นกับลูก | | | | | | | |
| 15. ฉันคอยเตือนลูกเกี่ยวกับพฤติกรรมที่ไม่ดีของเขาในอดีต | | | | | | | |
| 16. ฉันบอกให้ลูกรู้ว่า ถ้าเขาเชื่อฟังฉันอย่างสม่ำเสมอ เขาจะไม่ทำในสิ่งที่จะทำให้ฉันกังวลใจ | | | | | | | |
| 17. ฉันเดินหนีจากลูกเวลาที่เขาทำให้ฉัน ไม่พอใจ | | | | | | | |
| 18. ฉันอนุญาตให้ลูกแต่งตัวตามแบบที่เขาต้องการ | | | | | | | |
| 19. ฉันละเลยสิ่งที่ตัวเองเคยพูดไว้ เช่น กฎ ระเบียบ ข้อกำหนด | | | | | | | |
| 20. ฉันบอกลูกว่าฉันกังวลเกี่ยวกับผลเสียที่อาจจะเกิดขึ้นจากพฤติกรรมที่ไม่เหมาะสมของลูก | | | | | | | |

# APPENDIX C:

## The relationship among variables

```
NEW FILE. COMPUTE DPAsq=SQRT(DPA). EXECUTE. COMPUTE FEScubed=FESRTT *
FESRTT. EXECUTE. CORRELATIONS   /VARIABLES=CADBITOTAL DEPTOTAL CHODD
PRTT FEScubed DPAsq SCOMTT4   /PRINT=TWOTAIL NOSIG
/MISSING=PAIRWISE.
```

## Correlations

**Notes**

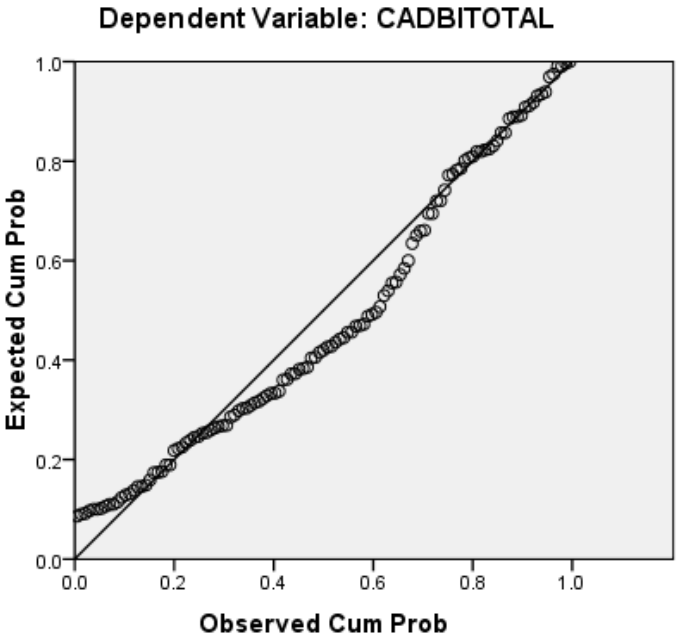
| | | |
|---|---|---|
| Output Created | | 21-ก.ค.-2557, 12 นาฬิกา 6 นาที |
| Comments | | |
| Input | Active Dataset | DataSet2 |
| | Filter | <none> |
| | Weight | <none> |
| | Split File | <none> |
| | N of Rows in Working Data File | 123 |
| Missing Value Handling | Definition of Missing | User-defined missing values are treated as missing. |
| | Cases Used | Statistics for each pair of variables are based on all the cases with valid data for that pair. |

| | | |
|---|---|---|
| Syntax | | CORRELATIONS<br>/VARIABLES=CADBITOTAL DEPTOTAL CHODD PRTT FEScubed DPAsq SCOMTT4<br>/PRINT=TWOTAIL NOSIG<br>/MISSING=PAIRWISE. |
| Resources | Processor Time | 0:00:00.078 |
| | Elapsed Time | 0:00:00.060 |

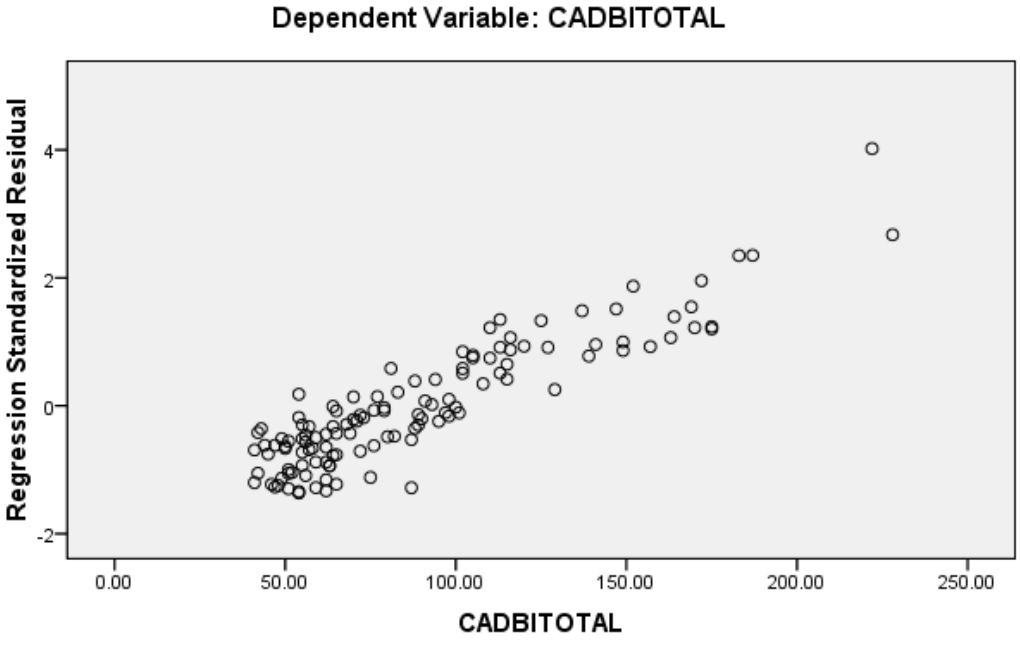
[DataSet2]

| | | CADBITOTAL | DEPTOTAL | CHODD | PRTT |
|---|---|---|---|---|---|
| CADBITOTAL | Pearson Correlation | 1 | .134 | .378** | -.186* |
| | Sig. (2-tailed) | | .139 | .000 | .039 |
| | N | 123 | 123 | 123 | 123 |
| DEPTOTAL | Pearson Correlation | .134 | 1 | .160 | -.035 |
| | Sig. (2-tailed) | .139 | | .076 | .704 |
| | N | 123 | 123 | 123 | 123 |
| CHODD | Pearson Correlation | .378** | .160 | 1 | -.099 |
| | Sig. (2-tailed) | .000 | .076 | | .277 |
| | N | 123 | 123 | 123 | 123 |
| PRTT | Pearson Correlation | -.186* | -.035 | -.099 | 1 |
| | Sig. (2-tailed) | .039 | .704 | .277 | |
| | N | 123 | 123 | 123 | 123 |
| FEScubed | Pearson Correlation | -.081 | -.293** | -.188* | .015 |
| | Sig. (2-tailed) | .373 | .001 | .037 | .865 |
| | N | 123 | 123 | 123 | 123 |
| DPAsq | Pearson Correlation | .062 | .069 | -.106 | -.146 |
| | Sig. (2-tailed) | .496 | .449 | .244 | .108 |
| | N | 123 | 123 | 123 | 123 |
| SCOMTT4 | Pearson Correlation | .054 | -.232** | -.126 | .024 |
| | Sig. (2-tailed) | .553 | .010 | .163 | .789 |
| | N | 123 | 123 | 123 | 123 |

Normal P-P Plot of Regression Standardized Residual




Scatterplot



```
REGRESSION   /MISSING LISTWISE   /STATISTICS COEFF OUTS R ANOVA
COLLIN TOL   /CRITERIA=PIN(.05) POUT(.10)   /NOORIGIN   /DEPENDENT
DEPTOTAL   /METHOD=ENTER CHODD PRTTCG2 FEScubed DPAsq SCOMTT4
/SCATTERPLOT=(*ZRESID ,DEPTOTAL)   /RESIDUALS DURBIN NORM(ZRESID).
```

## Regression

```
[DataSet1] C:\Users\TOSHIBA\Documents\July 19 123 cases\Data seven v
FESRTra DPATra.sav
```

**Variables Entered/Removed**

| Model | Variables Entered | Variables Removed | Method |
|---|---|---|---|
| 1 | SCOMTT4, PRTTCG2, FEScubed, DPAsq, CHODD[a] | . | Enter |

a. All requested variables entered.

**Model Summary[b]**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Durbin-Watson |
|---|---|---|---|---|---|
| 1 | .370[a] | .137 | .100 | 5.19816 | 1.983 |

a. Predictors: (Constant), SCOMTT4, PRTTCG2, FEScubed, DPAsq, CHODD

b. Dependent Variable: DEPTOTAL

**ANOVA[b]**

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 501.160 | 5 | 100.232 | 3.709 | .004[a] |
| | Residual | 3161.442 | 117 | 27.021 | | |
| | Total | 3662.602 | 122 | | | |

a. Predictors: (Constant), SCOMTT4, PRTTCG2, FEScubed, DPAsq, CHODD

b. Dependent Variable: DEPTOTAL

**Coefficients[a]**

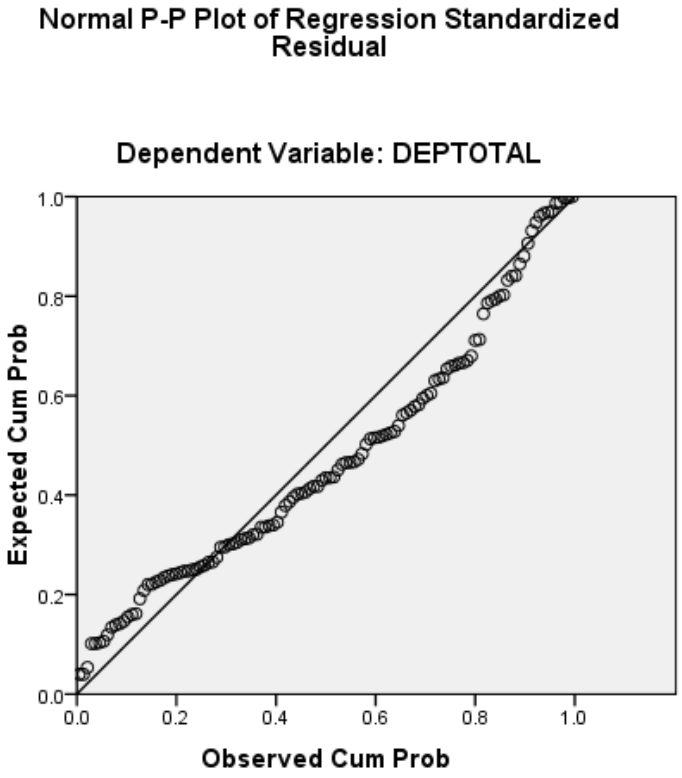
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | Colli |
|---|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | | Tolera |
| 1 | (Constant) | 28.614 | 4.070 | | 7.031 | .000 | |
| | CHODD | .477 | .443 | .096 | 1.077 | .284 | |
| | PRTTCG2 | -.004 | .043 | -.008 | -.093 | .926 | |
| | FEScubed | -.010 | .004 | -.243 | -2.737 | .007 | |
| | DPAsq | .752 | .981 | .068 | .766 | .445 | |
| | SCOMTT4 | -.394 | .177 | -.195 | -2.231 | .028 | |

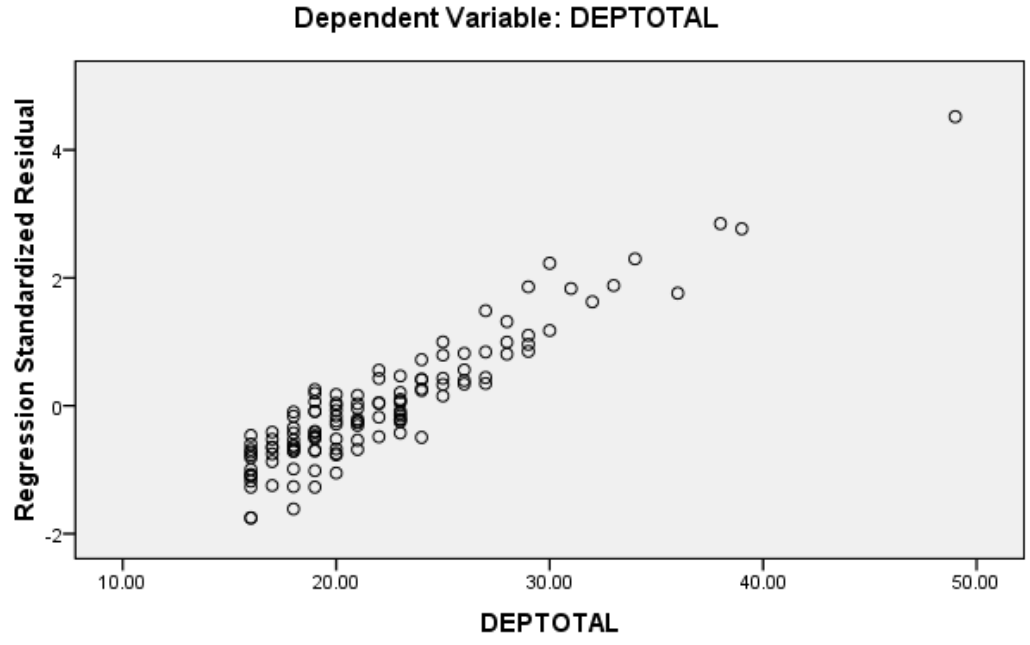
a. Dependent Variable: DEPTOTAL

**Residuals Statistics[a]**

| | Minimum | Maximum | Mean | Std. Deviation | N |
|---|---|---|---|---|---|
| Predicted Value | 17.6786 | 26.8500 | 22.0569 | 2.02679 | 123 |
| Residual | -9.11136 | 23.50022 | .00000 | 5.09053 | 123 |
| Std. Predicted Value | -2.160 | 2.365 | .000 | 1.000 | 123 |
| Std. Residual | -1.753 | 4.521 | .000 | .979 | 123 |

a. Dependent Variable: DEPTOTAL


Normal P-P Plot of Regression Standardized Residual
Dependent Variable: DEPTOTAL
Expected Cum Prob
Observed Cum Prob
0.0
0.2
0.4
0.6
0.8
1.0


Scatterplot
Dependent Variable: DEPTOTAL
Regression Standardized Residual
DEPTOTAL
-2
0
2
4
10.00
20.00
30.00
40.00
50.00

v

DATE: 7/24/2014
TIME: 11:07

L I S R E L 8.72

BY

Karl G. J"reskog & Dag S"rbom

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The following lines were read from file D:\Analysis Vatcharin new data\CFA for FESR.LPJ:

```
TI CFA for FESR
!DA NI=3 NO=123 MA=CM
SY='D:\Analysis Vatcharin new data\CFA for FESR.DSF'
MO NX=3 NK=1 TD=SY
LK
FESR
FR LX(1,1) LX(2,1) LX(3,1)
PD
OU
```

TI CFA for FESR

Number of Input Variables 3
Number of Y - Variables 0
Number of X - Variables 3
Number of ETA - Variables 0
Number of KSI - Variables 1
Number of Observations 123

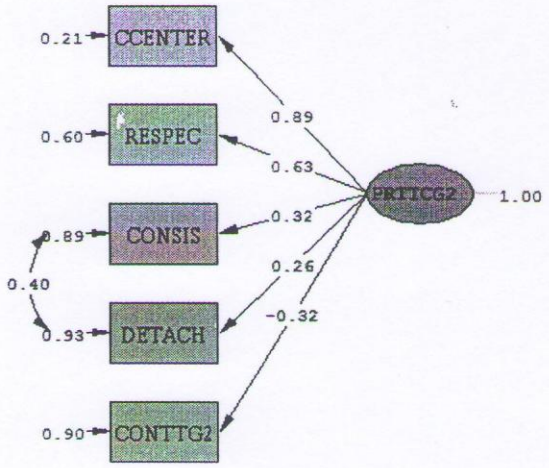
TI CFA for FESR

Covariance Matrix

| | COH | EXP | CONF |
|---|---|---|---|
| COH | 4.54 | | |
| EXP | 1.06 | 2.80 | |
| CONF | 2.47 | 0.30 | 4.44 |

CFA for Parent's Report (n=123)

Standardized solution




Chi-Square=3.33, df=4, P-value=0.50454, RMSEA=0.000

Normed Fit Index (NFI) = 0.97
Non-Normed Fit Index (NNFI) = 1.01
Parsimony Normed Fit Index (PNFI) = 0.39
Comparative Fit Index (CFI) = 1.00
Incremental Fit Index (IFI) = 1.01
Relative Fit Index (RFI) = 0.92

Critical N (CN) = 477.72

Root Mean Square Residual (RMR) = 0.49
Standardized RMR = 0.040
Goodness of Fit Index (GFI) = 0.99
Adjusted Goodness of Fit Index (AGFI) = 0.96
Parsimony Goodness of Fit Index (PGFI) = 0.26

Time used: 0.031 Seconds

CONSIS = 1.17*PRTTCG2, Errorvar.= 11.59, R² = 0.11
(0.36) (1.54)
3.23 7.53

DETACH = 1.05*PRTTCG2, Errorvar.= 15.42, R² = 0.067
(0.41) (2.01)
2.58 7.66

CONTTG2 = - 0.94*PRTTCG2, Errorvar.= 7.65 , R² = 0.10
(0.29) (1.02)
-3.22 7.54

Error Covariance for DETACH and CONSIS = 5.93
(1.37)
4.32

Correlation Matrix of Independent Variables

PRTTCG2
---
1.00

Goodness of Fit Statistics

Degrees of Freedom = 4
Minimum Fit Function Chi-Square = 3.40 (P = 0.49)
Normal Theory Weighted Least Squares Chi-Square = 3.33 (P = 0.50)
Chi-Square Difference with 1 Degree of Freedom = 24.22 (P = 0.0)
Estimated Non-centrality Parameter (NCP) = 0.0
90 Percent Confidence Interval for NCP = (0.0 ; 7.75)

Minimum Fit Function Value = 0.028
Population Discrepancy Function Value (F0) = 0.0
90 Percent Confidence Interval for F0 = (0.0 ; 0.063)
Root Mean Square Error of Approximation (RMSEA) = 0.0
90 Percent Confidence Interval for RMSEA = (0.0 ; 0.13)
P-Value for Test of Close Fit (RMSEA < 0.05) = 0.64

Expected Cross-Validation Index (ECVI) = 0.21
90 Percent Confidence Interval for ECVI = (0.21 ; 0.28)
ECVI for Saturated Model = 0.25
ECVI for Independence Model = 1.00

Chi-Square for Independence Model with 10 Degrees of Freedom = 111.53
Independence AIC = 121.53
Model AIC = 25.33
Saturated AIC = 30.00
Independence CAIC = 140.59
Model CAIC = 67.26
Saturated CAIC = 87.18

DATE: 7/24/2014

TIME: 20:13

L I S R E L 8.72

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Karl G. J"reskog & Dag S"rbom

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cfa for PRTTCG2

Covariance Matrix

| | CCENTER | RESPEC | CONSIS | DETACH | CONTTG2 |
|---|---|---|---|---|---|
| CCENTER | 16.32 | | | | |
| RESPEC | 9.26 | 16.92 | | | |
| CONSIS | 4.24 | 3.11 | 12.96 | | |
| DETACH | 3.75 | 3.62 | 7.16 | 16.53 | |
| CONTTG2 | -3.47 | -2.55 | -0.52 | 0.58 | 8.54 |

cfa for PRTTCG2

Number of Iterations = 5

LISREL Estimates (Maximum Likelihood)

Measurement Equations

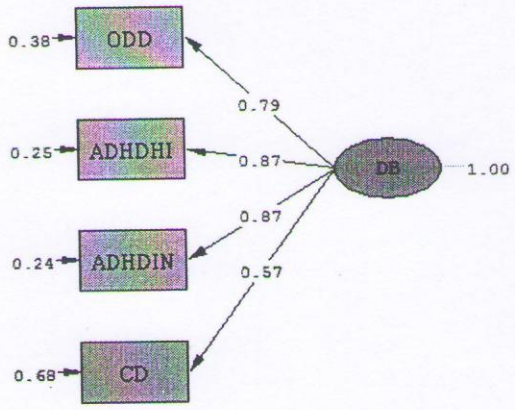
CCENTER = 3.59*PRTTCG2, Errorvar.= 3.45 , R² = 0.79
(0.52) (3.13)
6.93 1.10

RESPEC = 2.60*PRTTCG2, Errorvar.= 10.18, R² = 0.40
(0.46) (2.09)
5.66 4.87

CFA for DB (n=123)

Standardized solution

GFI= .99; AGFI =.95




Chi-Square=2.41, df=2, P-value=0.29928, RMSEA=0.041

| ODD | ADHDHI | ADHDIN | CD |
|---|---|---|---|
| 59.57 | 49.26 | 56.10 | 24.35 |
| (9.64) | (10.58) | (12.62) | (3.31) |
| 6.18 | 4.65 | 4.45 | 7.35 |

Squared Multiple Correlations for X - Variables

| ODD | ADHDHI | ADHDIN | CD |
|---|---|---|---|
| 0.62 | 0.75 | 0.76 | 0.32 |

Goodness of Fit Statistics
Degrees of Freedom = 2
Minimum Fit Function Chi-Square = 2.48 (P = 0.29)
Normal Theory Weighted Least Squares Chi-Square = 2.41 (P = 0.30)
Estimated Non-centrality Parameter (NCP) = 0.41
90 Percent Confidence Interval for NCP = (0.0 ; 8.75)
Minimum Fit Function Value = 0.020
Population Discrepancy Function Value (F0) = 0.0034
90 Percent Confidence Interval for F0 = (0.0 ; 0.072)
Root Mean Square Error of Approximation (RMSEA) = 0.041
90 Percent Confidence Interval for RMSEA = (0.0 ; 0.19)
P-Value for Test of Close Fit (RMSEA < 0.05) = 0.40

Expected Cross-Validation Index (ECVI) = 0.15
90 Percent Confidence Interval for ECVI = (0.15 ; 0.22)
ECVI for Saturated Model = 0.16
ECVI for Independence Model = 2.28

Chi-Square for Independence Model with 6 Degrees of Freedom = 270.25
Independence AIC = 278.25
Model AIC = 18.41
Saturated AIC = 20.00
Independence CAIC = 293.50
Model CAIC = 48.91
Saturated CAIC = 58.12

Normed Fit Index (NFI) = 0.99
Non-Normed Fit Index (NNFI) = 0.99
Parsimony Normed Fit Index (PNFI) = 0.33
Comparative Fit Index (CFI) = 1.00
Incremental Fit Index (IFI) = 1.00
Relative Fit Index (RFI) = 0.97

Critical N (CN) = 453.57
Root Mean Square Residual (RMR) = 1.80
Standardized RMR = 0.020
Goodness of Fit Index (GFI) = 0.99
Adjusted Goodness of Fit Index (AGFI) = 0.95
Parsimony Goodness of Fit Index (PGFI) = 0.20

TI CFA for DB

Parameter Specifications

LAMBDA-X

| | DB |
|---|---|
| ODD | 1 |
| ADHDHI | 2 |
| ADHDIN | 3 |
| CD | 4 |

THETA-DELTA

| ODD | ADHDHI | ADHDIN | CD |
|---|---|---|---|
| 5 | 6 | 7 | 8 |

TI CFA for DB
Number of Iterations = 2
LISREL Estimates (Maximum Likelihood)

LAMBDA-X

| | DB |
|---|---|
| ODD | 9.86 |
| | (0.99) |
| | 9.98 |
| ADHDHI | 12.15 |
| | (1.06) |
| | 11.43 |
| ADHDIN | 13.45 |
| | (1.16) |
| | 11.58 |
| CD | 3.41 |
| | (0.52) |
| | 6.52 |

PHI

| | DB |
|---|---|
| | 1.00 |

THETA-DELTA

DATE: 7/24/2014
TIME: 11:20

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The following lines were read from file D:\Analysis Vatcharin new data\CFA for DB.LPJ:

```
TI CFA for DB
!DA NI=4 NO=123 MA=CM
SY='D:\Analysis Vatcharin new data\CFA for DB.DSF'
MO NX=4 NK=1 TD=SY
LK
DB
FR LX(1,1) LX(2,1) LX(3,1) LX(4,1)
PD
OU
```

TI CFA for DB

Number of Input Variables 4
Number of Y - Variables 0
Number of X - Variables 4
Number of ETA - Variables 0
Number of KSI - Variables 1
Number of Observations 123

TI CFA for DB

Covariance Matrix

| | ODD | ADHDHI | ADHDIN | CD |
|---|---|---|---|---|
| ODD | 156.81 | | | |
| ADHDHI | 117.29 | 197.00 | | |
| ADHDIN | 133.09 | 164.91 | 236.95 | |
| CD | 37.34 | 42.01 | 42.78 | 35.99 |

Covariance Matrix of Y and X

| | FEScubed |
|---|---|
| FEScubed | 18666.28 |

Mean Vector of Eta-Variables

| PRTTCG2 | SCOMTT4 | DEPTOTAL | CADBITOT |
|---|---|---|---|
| 68.17 | 11.88 | 22.06 | 88.98 |

PHI

| | CHODD | DPAsq | FEScubed |
|---|---|---|---|
| CHODD | 1.22 | | |
| | (0.15) | | |
| | 7.99 | | |
| DPAsq | -0.06 | 0.24 | |
| | (0.05) | (0.03) | |
| | -1.15 | 7.71 | |
| FEScubed | -28.41 | -7.46 | 18666.28 |
| | (6.18) | (2335.54) | |
| | -1.21 | 7.99 | |

PSI

Note: This matrix is diagonal.

| PRTTCG2 | SCOMTT4 | DEPTOTAL | CADBITOT |
|---|---|---|---|
| 120.06 | 7.30 | 25.66 | 1399.24 |
| (15.56) | (0.95) | (3.33) | (181.40) |
| 7.71 | 7.71 | 7.71 | 7.71 |

Squared Multiple Correlations for Structural Equations

| PRTTCG2 | SCOMTT4 | DEPTOTAL | CADBITOT |
|---|---|---|---|
| 0.01 | 0.01 | 0.13 | 0.18 |

Squared Multiple Correlations for Reduced Form

| PRTTCG2 | SCOMTT4 | DEPTOTAL | CADBITOT |
|---|---|---|---|
| 0.01 | 0.01 | 0.08 | 0.16 |

Reduced Form

| | CHODD | DPAsq | FEScubed |
|---|---|---|---|
| PRTTCG2 | -1.14 | -- | -- |
| | (0.91) | | |
| | 1.26 | | |

TI Path for 123 cases
Number of Iterations = 0

LISREL Estimates (Maximum Likelihood)

BETA

| | PRTTCG2 | SCOMTT4 | DEPTOTAL | CADBITOT |
|---|---|---|---|---|
| PRTTCG2 | -- | -- | -- | -- |
| SCOMTT4 | -- | -- | -- | -- |
| DEPTOTAL | 0.00 | -0.41 | -- | 0.01 |
| | (0.04) | (0.17) | | (0.01) |
| | 0.05 | -2.40 | | 1.08 |
| CADBITOT | -0.46 | 1.53 | -- | -- |
| | (0.31) | (1.27) | | |
| | -1.47 | 1.21 | | |

GAMMA

| | CHODD | DPAsq | FEScubed |
|---|---|---|---|
| PRTTCG2 | -1.14 | -- | -- |
| | (0.91) | | |
| | -1.26 | | |
| SCOMTT4 | -- | 0.46 | -- |
| | | (0.50) | |
| | | 0.92 | |
| DEPTOTAL | 0.28 | 0.66 | -0.01 |
| | (0.47) | (0.96) | (0.00) |
| | 0.61 | 0.69 | -2.78 |
| CADBITOT | 14.35 | 6.72 | 0.00 |
| | (3.21) | (7.09) | (0.03) |
| | 4.47 | 0.95 | -0.10 |

Covariance Matrix of Y and X

| | PRTTCG2 | SCOMTT4 | DEPTOTAL | CADBITOT | CHODD | DPAsq |
|---|---|---|---|---|---|---|
| PRTTCG2 | 121.65 | | | | | |
| SCOMTT4 | 0.03 | 7.35 | | | | |
| DEPTOTAL | -1.43 | -2.79 | 29.50 | | | |
| CADBITOT | -75.63 | 11.65 | 28.79 | 1714.79 | | |
| CHODD | -1.39 | -0.03 | 0.83 | 17.77 | 1.22 | |
| DPAsq | 0.07 | 0.11 | 0.18 | 0.96 | -0.06 | 0.24 |
| FEScubed | 32.46 | -3.45 | -199.92 | -524.82 | -28.41 | -7.46 |

| PRTTCG2 | SCOMTT4 | DEPTOTAL | CADBITOT |
|---|---|---|---|
| 68.17 | 11.88 | 22.06 | 88.98 |

PHI

| | CHODD | DPAsq | FEScubed |
|---|---|---|---|
| CHODD | 1.22 | | |
| DPAsq | -0.06 | 0.24 | |
| FEScubed | -28.41 | -7.46 | 18666.28 |

PSI

Note: This matrix is diagonal.

| PRTTCG2 | SCOMTT4 | DEPTOTAL | CADBITOT |
|---|---|---|---|
| 120.06 | 7.30 | 25.66 | 1399.24 |

Squared Multiple Correlations for Structural Equations

| PRTTCG2 | SCOMTT4 | DEPTOTAL | CADBITOT |
|---|---|---|---|
| 0.01 | 0.01 | 0.13 | 0.18 |

Squared Multiple Correlations for Reduced Form

| PRTTCG2 | SCOMTT4 | DEPTOTAL | CADBITOT |
|---|---|---|---|
| 0.01 | 0.01 | 0.08 | 0.16 |

Reduced Form

| | CHODD | DPAsq | FEScubed |
|---|---|---|---|
| PRTTCG2 | -1.14 | -- | -- |
| | (0.05) | | |
| | -25.33 | | |
| SCOMTT4 | -- | 0.46 | -- |
| | | (12.52) | |
| | | 0.04 | |
| DEPTOTAL | 0.48 | 0.57 | -0.01 |
| | (7.02) | (6.02) | (2.47) |
| | 0.07 | 0.09 | 0.00 |
| CADBITOT | 14.88 | 7.43 | 0.00 |
| | (3.92) | (19.20) | (0.33) |
| | 3.80 | 0.39 | -0.01 |

ALPHA

| PRTTCG2 | SCOMTT4 | DEPTOTAL | CADBITOT |
|---|---|---|---|
| 69.91 | 11.48 | 27.60 | 75.38 |

```
  DPAsq      15      16
FEScubed      0      17      18

    PSI

       PRTTCG2   SCOMTT4  DEPTOTAL  CADBITOT
       --------  --------  --------  --------
          19       20       21       22

    ALPHA

       PRTTCG2   SCOMTT4  DEPTOTAL  CADBITOT
       --------  --------  --------  --------
          23       24       25       26


TI Path for 123 cases
Initial Estimates (TSLS)
    BETA
       PRTTCG2   SCOMTT4  DEPTOTAL  CADBITOT
       --------  --------  --------  --------
 PRTTCG2      --      --      --      --
 SCOMTT4      --      --      --      --
DEPTOTAL     0.00    -0.41     --     0.01
CADBITOT    -0.46     1.53     --     --

    GAMMA
         CHODD    DPAsq  FEScubed
       --------  --------  --------
 PRTTCG2    -1.14      --      --
 SCOMTT4      --     0.46      --
DEPTOTAL     0.28     0.66    -0.01
CADBITOT    14.35     6.72     0.00

    Covariance Matrix of Y and X
       PRTTCG2   SCOMTT4  DEPTOTAL  CADBITOT    CHODD    DPAsq
       --------  --------  --------  --------  --------  --------
 PRTTCG2    121.65
 SCOMTT4      0.03     7.35
DEPTOTAL     -1.43    -2.79    29.50
CADBITOT    -75.63    11.65    28.79  1714.79
  CHODD     -1.39    -0.03     0.83    17.77     1.22
  DPAsq      0.07     0.11     0.18     0.96    -0.06     0.24
FEScubed    32.46    -3.45  -199.92  -524.82   -28.41    -7.46

    Covariance Matrix of Y and X
       FEScubed
       --------
FEScubed  18666.28

    Mean Vector of Eta-Variables
```

| | | | | | | |
|---|---|---|---|---|---|---|
| PRTTCG2 | 121.65 | | | | | |
| SCOMTT4 | 0.96 | 7.35 | | | | |
| DEPTOTAL | -2.44 | -3.44 | 30.02 | | | |
| CADBITOT | -78.54 | 6.05 | 30.31 | 1701.60 | | |
| CHODD | -1.39 | -0.38 | 0.97 | 17.23 | 1.22 | |
| DPAsq | -0.57 | 0.11 | 0.19 | 1.26 | -0.06 | 0.24 |
| FEScubed | 48.93 | 45.72 | -219.36 | -456.98 | -28.41 | -7.46 |

Covariance Matrix

| | FEScubed |
|---|---|
| FEScubed | 18666.28 |

Means

| PRTTCG2 | SCOMTT4 | DEPTOTAL | CADBITOT | CHODD | DPAsq |
|---|---|---|---|---|---|
| 68.17 | 11.88 | 22.06 | 88.98 | 1.52 | 0.85 |

Means

| FEScubed |
|---|
| 304.70 |

TI Path for 123 cases
Parameter Specifications
BETA

| | PRTTCG2 | SCOMTT4 | DEPTOTAL | CADBITOT |
|---|---|---|---|---|
| PRTTCG2 | 0 | 0 | 0 | 0 |
| SCOMTT4 | 0 | 0 | 0 | 0 |
| DEPTOTAL | 1 | 2 | 0 | 3 |
| CADBITOT | 4 | 5 | 0 | 0 |

GAMMA

| | CHODD | DPAsq | FEScubed |
|---|---|---|---|
| PRTTCG2 | 6 | 0 | 0 |
| SCOMTT4 | 0 | 7 | 0 |
| DEPTOTAL | 8 | 9 | 10 |
| CADBITOT | 11 | 12 | 13 |

PHI

| | CHODD | DPAsq | FEScubed |
|---|---|---|---|
| CHODD | 14 | | |

DATE: 7/24/2014
TIME: 19:22

L I S R E L 8.72

BY

Karl G. J"reskog & Dag S"rbom

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The following lines were read from file D:\Data Vatcharin\123 cases.LPJ:

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TI Path for 123 cases
!DA NI=7 NO=123 MA=CM
SY='D:\Data Vatcharin\123 cases.DSF'
SE
2 3 6 7 1 4 5 /
MO NX=3 NY=4 BE=FU GA=FI PS=SY TY=FI TX=FI AL=FI KA=FI
FR BE(3,1) BE(3,2) BE(3,4) BE(4,1) BE(4,2) GA(1,1) GA(2,2) GA(3,1) GA(3,2)
FR GA(3,3) GA(4,1) GA(4,2) GA(4,3) AL(1) AL(2) AL(3) AL(4) KA(1)
FR KA(2) KA(3)
FI PH(3,1)
PD
OU RS EF SS PT
```

TI Path for 123 cases

Number of Input Variables 7
Number of Y - Variables 4
Number of X - Variables 3
Number of ETA - Variables 4
Number of KSI - Variables 3
Number of Observations 123

TI Path for 123 cases

Covariance Matrix

PRTTCG2 SCOMTT4 DEPTOTAL CADBITOT CHODD DPAsq

VITA

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