Predicting Factors for Risk of Depression in Adolescents with Learning Disorders

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Objective: *To study the predicting factors for risk of depression in adolescents with learning disorders.*
Material and Method: *One hundred adolescent patients with learning disorders between 10 and 19 years of age were included in this study. The data were collected by using four questionnaires and analyzed using descriptive statistics, Pearson's product moment correlation coefficient, and stepwise regression technique.*
Results: *The sample was composed of 77 males (77%) and 23 females (23%) with a mean age of 13.25 (SD = 2.49). Most of the samples (42%) were in secondary elementary school. The subtype found most was specific spelling disorder (76%), and the comorbidity found most was Attention-Deficit/Hyperactivity Disorder (ADHD) (81%). The self-esteem predicted 23% of the variation in risk of depression. The power of prediction was increased to 27% and 32% respectively when gender and family functioning was added respectively. However, the comorbidity could not predict risk of depression.*
Conclusion: *Development of an intervention program to reduce the risk of depression in adolescents with learning disorders is recommended. This program should be aimed to increase self-esteem, focus on the concern with gender differences, and strengthen family functioning.*

Keywords: *Learning disorders, Self-esteem, Gender, Family functioning, Risk of depression*

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Children and adolescents with learning disorders are likely to have inappropriate development of specific learning skills including reading, writing, calculation, or a combination of different skills even though they do not have impairment in their intellectual or physical ability, unless they do not live in a culture or environment where learning is Underprivileged[1]. One of the most important risk factor in children and adolescents with learning disorders is suicide is depression[2]. A review of literature has shown that there are adolescent and family factors that are associated with depression in adolescents with learning disorders. One of the adolescent factors is low self-esteem. When adolescents with learning disorders have learning problems, they will lose their self-confidence and feel that they are unable to do things successfully. This can result in lack of self-respect and self-esteem, which can in turn lead to depression. For instance, Stevenson and Romney[3] conducted a study with 103 children and adolescents aged 8 to 13 years who had learning disorders and found that they had a higher level of depression and lower sense of self-esteem when compared to normal children and adolescents. Another important adolescent factor is gender. Valas[4] studied peer acceptance, feeling of isolation, self-esteem, and depression in 82 children with learning disorders aged 10 to 16 years in Norway and found that girls had more depression than boys with statistical significance ($p < 0.05$). A similar finding in normal children has been reported by the American Psychiatric Association. The number of female adolescents with depression doubled the number of male adolescents with depression. The third child factor is comorbidity. The comorbidity that is most commonly found with learning disorders is attention deficit hyperactivity disorder (ADHD), which is found in one out of three children with learning disorders[5]. In addition, McNamara, Willougby, Chalmers, and YLC-CURA[6] carried out a study in adolescents aged 13 to 18 years who had both learning disorders and ADHD in Canada. They found that those adolescents had more depression

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than those who had only learning disorders with statistical significance ($p < 0.01$). One of the family factors that are associated with depression in adolescents with learning disorders is components of family functioning. However, few studies have been carried out to determine the relationship between family functioning and depression in adolescents with learning disorders and the findings are inconclusive. Capozzi et al[7] investigated the relationship between parental relationship and mental symptoms of 52 children with learning disorders aged 7 to 12.6 years who resided in Rome, Italy. The findings revealed that the fact that the father neglected or deserted the mother and the fact that the mother was too attached to the child were associated with anxiety and depression in children with learning disorders. In Thailand, studies have also been conducted to examine the relationships between family functioning and depression in children with other chronic illnesses. For instance, Virawan Upraman[8] investigated the relationship between family functioning and depression in the families of early adolescents aged 12 to 15 years and found that in families with children with depression, family functioning in terms of communication and emotional attachment were inappropriately higher than those in early adolescents with no depression with statistical significance ($p = 0.01$). Thus, it was worth investigating whether family functioning was a variable that could predict depression in children and adolescents with learning disorders.

Therefore, the researcher was interested in investigating predictive factors for risks of depression in adolescents with learning disorders in terms of self-esteem, gender, comorbidity, and family functioning.

Material and Method

The present study was predictive correlational research. It was approved by the ethics committee of the Siriraj Hospital and Ramathibodi Hospital. The samples included 100 adolescent patients with learning disorders between 10 and 19 years of age. They were diagnosed with learning disorders by Psychiatrists at Siriraj Hospital, Child and Adolescent Mental Health Rajanagarindra Institute, and Ramathibodi Hospital. The data were collected by using four questionnaires, 1) The personal data questionnaire, 2) The Rosenberg self-esteem scale, 3) The Thai Family Functioning Scale (TFFS), and 4) The Children's Depression Inventory (CDI). The data were analyzed using descriptive statistics, Pearson's product moment correlation coefficient, and stepwise regression technique. P-value of less than 0.05 was set for statistical significance.

Results

The study findings showed that of the 100 subjects who participated in the study, 77% were male. Their mean age was 13.25 years (SD = 2.49), and 42% were studying in elementary grades 4 to 6. As regards their learning disorders, 76% of the sample had specific spelling disorder. Most of them (86%) had comorbidity. Comorbidity, which was found most was attention deficit hyperactivity disorder (ADHD) (84.89%).

According to the study findings, 24% of the fathers and 33% of the mothers graduated with a Bachelor's degree. Close to half, or 73%, were married and lived with their spouse. Moreover, almost half of the parents, or 49%, had a family income ranging from 18,001 to 100,000 baht. Finally, most of them, or 79%, did not have a family history of psychiatric illness.

The possible total scores of self-esteem ranged from 10 to 40 points. The present study findings revealed that the mean score of self-esteem of the subjects was equal to 29.24 (SD = 3.20), which was considered rather high.

The possible total scores of family functioning ranged from 0 to 90 points. The present study findings showed that the scores of family functioning of the subjects were moderate (range = 27-81, mean = 59.31, SD = 11.58). A half of the subjects, or 50%, had moderate family functioning (mean = 51.24, SD = 6.19).

Out of the 100 subjects, 16 of them (16%) had a risk of depression (T-score $\geq$ 65). Females had more risks of depression than males. Of these, ten were female, and six were male. In general, the subjects had the mean score of risks of depression at T-score of 55.19 (mean = 55.19, SD = 9.04).

As illustrated in Table 1, the analysis of the relationship revealed that self-esteem was negatively related to risks of depression with statistical significance at the 0.001 level ($r = -0.48$, $p < 0.001$). Moreover, gender was positively related to risks of depression with statistical significance at the.01 level ($r = 0.28$, $p < 0.01$). According to the study findings, females had more risks of depression than males. In addition, there was a statistically significant negative relationship between family functioning and depression at the 0.001 level ($r = -0.40$, $p < 0.001$). Finally, the findings indicated that there was no relationship between comorbidity and risks of depression.

As illustrated in Table 2, the findings indicated that self-esteem could predict risks of depression in adolescents with learning disorders by 23% ($R^2 = 0.23$,

Table 1. Correlation coefficient between self-esteem, gender, comorbidity, and family functioning and risks of depression in adolescents with learning disorders

Studyvariables	1	2	3	4	5
Self-esteem	1.00				
Gender	-0.13	1.00			
Comorbidity	-0.03	-0.05	1.00		
Family functioning	0.45***	-0.01	0.09	1.00	
Risks of depression	-0.48***	0.28**	-0.06	-0.40***	1.00

** $p < 0.01$, *** $p < 0.001$

Table 2. Stepwise regression analysis between predictive factors and risks of depression in adolescents with learning disorders

Predictive factors	B	t	β	R^2	R^2_{change}	F_{change}
Predictor variables Self-esteem, gender, comorbidity, and family functioning						
Model 1				0.23	0.23	28.50***
Constant	94.34	12.79***	-			
Self-esteem	-1.34	-5.34***	-0.48			
Model 2				0.27	0.05	6.40*
Constant	90.87	12.43***	-			
Self-esteem	-1.26	-5.11***	-0.45			
Gender (male = 0, female = 1)	4.72	2.53*	0.22			
Model 3				0.32	0.05	6.73*
Constant	93.02	13.01***	-			
Self-esteem	-0.95	-3.54**	-0.34			
Gender (male = 0, female = 1)	4.98	2.75**	0.23			
Family functioning	-0.19	-2.60*	-0.24			
$SE_b = 7.15$, Constant (a) = 93.02						

* $p < 0.05$, **$p < 0.01$, *** $p < 0.001$

$p < 0.001$) (model 1). When the variable of gender was added, the predictive power for risks of depression in adolescents with learning disorders was increased to 27% ($R^2 = 0.27$, $p < 0.05$) (model 2). Finally, when all three variables of self-esteem, gender, and family-functioning were included, the predictive power for risks of depression in adolescents with learning disorders was increased to 32% ($R^2 = 0.32$, $p < 0.05$) (model 3). However, the findings showed that co-morbidity could not predict risks of depression in adolescents with learning disorders. When considering the stepwise regression analysis in the form of standard scores (β), it was found that the study variables with the highest predictive power for risks of depression in adolescents with learning disorders was self-esteem ($\beta = -0.34$, $p < 0.01$). This was followed by family functioning ($\beta = -0.24$, $p < 0.05$) and gender ($\beta = -0.23$, $p < 0.01$), respectively.

Discussion

The findings indicated that self-esteem was the most important predictor of depression ($\beta = -0.39$, $p < 0.001$). This may be the self-esteem is a very significant factor for emotional, social, and learning adjustment of adolescents. Adolescents with learning disorders have to face difficulty in studying and socializing with others. They tend to feel that they do not have anything good in them. They also lack self-confidence, are easily discouraged, lack motivation and happiness, do not succeed in what they are doing, experience repeated failures in learning, or are teased or looked down on by their friends. As a result, they are likely to feel uneasy, exhausted, and disheartened, and have a low sense of self-esteem[9], which can easily lead to depression.

The findings also indicated that gender was a predictor of risks of depression as female adolescents

were more susceptible to depression than male adolescents[10-12]. When there are problems, especially learning problems, female adolescents tend to develop internalizing behaviors such as uneasiness, stress, anxiety, and depression, which are difficult to detect, so the assistance they need may be delayed. On the other hand, male adolescents are more likely to have externalizing behaviors such as aggression or disruptive behaviors, which are more easily observed[13].

The family functioning could predict depression in adolescents with learning disorder because family is considered a very important foundation and environment in adolescents' growth and development. For children and adolescents, family is a major variable that influences their physical, psychological, and social development. It promotes their self-esteem, motivation, and success in learning and other aspects of life[14]. Therefore, if family functioning is unhealthy, it will stimulate an onset of stressors that can lead to depression.

However, in the present study, it was found that comorbidity could not predict risks of depression in adolescents with learning disorders. One plausible explanation is that the subjects of the present study had a rather high level of self-esteem, and their family functioning was at a moderately high level. In addition, most of their parents lived together. As a result, these children were able to adjust themselves to learning disorders even though there were other co-morbidities. More importantly, adolescents with learning disorders received treatment for their disorders together with the treatment of other co-morbidities, especially those who also had ADHD. Therefore, their symptoms such as lack of concentration and impulsiveness had been clearly improved after pharmacological treatments.

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Potential conflicts of interest

None.

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ปัจจัยทำนายความเสี่ยงต่อภาวะซึมเศร้าในเด็กวัยรุ่นที่มีความผิดปกติของการเรียนรู้

มาณิกา เพชรรัตน์, วิมลนันท์ พุฒิวณิชพงศ์, ยาใจ สิทธิมงคล, สุพร อภินันทเวช

วัตถุประสงค์: *เพื่อศึกษาปัจจัยทำนายความเสี่ยงต่อภาวะซึมเศร้าในเด็กวัยรุ่นที่มีความผิดปกติของการเรียนรู้*
วัสดุและวิธีการ: *กลุ่มตัวอย่างเป็นเด็กวัยรุ่นอายุ 10-19 ปี จำนวน 100 ราย ที่มีความผิดปกติของการเรียนรู้ โดยใช้เครื่องมือวิจัย จำนวน 4 ชุด วิเคราะห์ข้อมูลโดยใช้สถิติเชิงพรรณนา สัมประสิทธิ์สหสัมพันธ์ของเพียร์สัน และการวิเคราะห์ความถดถอยเชิงพหุแบบขั้นตอน*
ผลการศึกษา: *กลุ่มตัวอย่างเป็นเพศชาย 77 ราย (ร้อยละ 77) และเพศหญิง 23 ราย (ร้อยละ 23) อายุ 10 ถึง 19 ปี เฉลี่ย 13.25 ปี (SD = 2.49) ส่วนใหญ่ศึกษาอยู่ในชั้นประถมศึกษาตอนปลาย (ร้อยละ 42) มีความผิดปกติของการเรียนรู้ชนิดสะกดคำบกพร่องมากที่สุด (ร้อยละ 76) และส่วนใหญ่มีโรคซนสมาธิสั้นร่วมด้วย (ร้อยละ 81) ความรู้สึกเห็นคุณค่าในตนเองสามารถทำนายความเสี่ยงต่อภาวะซึมเศร้าได้สูงสุดร้อยละ 23 และค่าอำนาจในการทำนายเพิ่มขึ้นร้อยละ 27 และ 32 ตามลำดับ เมื่อเพิ่มตัวแปรเพศและองค์ประกอบในการทำหน้าที่ของครอบครัว ตามลำดับ ส่วนภาวะโรคร่วมพบว่าไม่สามารถทำนายความเสี่ยงต่อภาวะซึมเศร้า*
สรุป: *ผลจากการศึกษาครั้งนี้แสดงให้เห็นว่าในการพัฒนาโปรแกรมเพื่อลดความเสี่ยงต่อภาวะซึมเศร้าในเด็กวัยรุ่นที่มีความผิดปกติของการเรียนรู้ ควรจะมุ่งเน้นในเรื่องการเพิ่มความรู้สึกเห็นคุณค่าในตนเอง การคำนึงถึงความแตกต่างระหว่างเพศ และการทำให้องค์ประกอบในการทำหน้าที่ของครอบครัวเข้มแข็งเพิ่มขึ้น*