

# Factors related to adversity quotient in junior high school students<sup>†</sup>



Original article

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Received: 7 March 2024; Accepted: 25 August 2024; Published: 20 March 2025

**Abstract: Objectives:** To determine the level of adversity quotient and its associations with rumination, optimism, and authoritative parenting style in junior high school students. Adversity quotient is the adaptation ability to overcome problems and obstacles with a positive attitude. Early adolescence, as a critical stage of life, needs to cultivate adversity quotient. However, adversity quotient and its influencing factors in adolescents have not been fully understood.

**Methods:** A total of 129 students from 3 junior high schools (grade 7–9) in Chon Buri province, Thailand, were randomly recruited to participate in this correlational research study. They completed 5 questionnaires including the demographic form, adversity quotient assessment, authoritative parenting style, optimism, and rumination. Descriptive statistics and Pearson's correlation coefficient were used for data analysis.

**Results:** Adversity quotient was at a moderate level with a mean of 138.78 (standard deviation [SD] = 21.25). Adversity quotient was significantly, positively correlated with authoritative parenting at the highest level ( $r = 0.60$ ), followed by optimism at a moderate level ( $r = 0.38$ ), and rumination at a low level ( $r = 0.25$ ,  $P < 0.01$ ).

**Conclusions:** All parties responsible for early adolescents' development should enhance the adversity quotient to a higher level through campaigns promoting authoritative parenting and optimism. An unexpected positive correlation between adversity quotient and rumination warrants cautious interpretation and more studies.

**Keywords:** *adversity quotient • authoritative parenting • early adolescence • optimism • rumination*

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## 1. Introduction

Early adolescence is the critical transition period from childhood to adulthood. Early adolescents have a fast physical, psychological, cognitive, emotional, and social

development. Changes and development in the brain of early adolescents are at a fast pace especially the limbic system which is responsible for their basic instinct

<sup>†</sup> This project was supported by the Faculty of Nursing Burapha University (No. 19/2561).

How to cite this article: Kwansumran W, Dallas JC, Wonginjun S, Sangsai N. Factors related to adversity quotient in junior high school students. *Front Nurs.* 2025;1:19–26.

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and emotion. As a result, their emotional expression is impulsive and intense. With a high likelihood of these inappropriate emotional expressions, early adolescence is considered the age of storm and stress.<sup>1</sup> Accordingly, sound adjustment could bring a proper management of emotional conflicts, consonance, capability to manage anxiety, fear, or anger, psychological stability, and a low likelihood of depression or mental health problems. However, poor mental adjustment leads to a high likelihood of risky behaviors, stress, anxiety, depression, and ultimately suicidal ideation.<sup>2</sup> In Thailand, an epidemiologic survey by the Department of Mental Health revealed that the prevalence of mental health problems was 1.6% in adolescents aged 13–17 years old. Based on the World Health Organization (WHO) survey, a prevalence of mental health problems of 4.43% among early adolescents was found. According to the survey report of Southeast Asian countries, 15.0% of Thai early adolescents had suicidal ideation, and 13.0% attempted suicide.<sup>3</sup> These reported prevalence rates of mental health problems and depression among Thai's early adolescents indicate an urgent need to understand more about this sociopsychological problem and its influencing factors. Among various factors influencing depression, the adversity quotient has been found to predict a substantial variability of depression.

Adversity quotient based on Stoltz<sup>4</sup> is the individual's ability to handle or overcome adversities such as difficulties or obstacles in his or her life. Individuals with adversity quotient endure and persevere when facing difficulties. They respond to problems and obstacles with a positive attitude, mindfulness, responsibility, and determination in seeking solutions. Persons with adversity quotient perceive their control over adverse events. For ownership, the persons hold themselves accountable for the outcomes of dealing with adverse events. For the reach component, the persons perceive how good or bad the adverse event affects their overall life. The endurance reflects the duration the good or bad adverse situation would last as perceived by persons. These 4 attributes determine how the persons perceive and handle adverse events and the consequent mental health problems and depression. Previous studies show that adversity quotient was positively associated with self-care behavior in university students in Thailand<sup>5</sup> and higher adversity quotient significantly affected reducing stress level.<sup>6</sup>

In Indian junior high school students, low adversity quotient was associated with a high chance of depression.<sup>7</sup> These findings indicate adversity quotient is a crucial defense against mental health problems among early adolescents. With more problems among early adolescents especially those in junior high schools, more understanding of factors influencing adversity quotient

is urgently needed. Based on the adversity quotient concept of Stoltz<sup>8</sup> and previous research on adolescents, rumination, optimism, and authoritative parenting are found to be associated with adversity quotient.

Rumination is repetitive negative thinking about the causes and consequences of the problem without solutions. In adolescents, rumination on their own negative or detrimental situations or feelings could lead to a high chance of emotional stress and ultimately suicidal ideation. Previous studies show that rumination moderated the relationship between concurrent affective states and suicidal ideation, at both the within-person and between-person levels. Specifically, the relations between affective states and suicidal ideation were stronger at higher levels of rumination.<sup>9</sup> There have been no studies demonstrating the association of rumination with adversity quotient. We aimed to examine the relationship between rumination and adversity quotient in Thai junior high school students.

Optimism is confidence or belief that good things will come to the person in the present and future. Optimistic trait is crucial for enhancing the effectiveness of adjustment and transition through hardships. Optimistic individuals view their expectations and plan for outcomes as much as possible. Hence, they are motivated and determined to proceed to the set target.<sup>10</sup> A study revealed that adversity quotient was positively associated with optimism among life insurance agents.<sup>11</sup> A person with good Adversity quotient can achieve the goal by fighting against all odds. It is also related to many other factors like self-esteem, motivation, fighting spirit, creativity, sincerity, positive attitude, optimism, emotional stability, etc.<sup>12</sup> We speculated that optimism was positively associated with adversity quotient among Thai junior high school students.

Authoritative parenting could contribute to adjustment ability in adolescents with its proper control on and response to the child's feeling. The other 3 types of parenting included authoritarian parenting (i.e., control with no response to child's feeling), permissive parenting (i.e., no control but with response to child's feeling), and uninvolved parenting (i.e., no control or response to child's feeling).<sup>13</sup> Studies show that authoritative parenting is effective in enriching children and adolescents to be able to adjust to the society, self-control, and achieve emotional intelligence. A study in Malang, Indonesia showed that authority parenting has an influence and increases the adversity quotient and student's learning motivation.<sup>14</sup> Another study in a foster home in one of the provinces of Thailand revealed that most children were from families with a tight control and low acceptance or closeness with the children. These children had low adversity quotient scores. The researchers also found a relationship between authoritative parenting

and adversity quotient.<sup>15</sup> It could be hypothesized that authoritative parenting was associated with adversity quotient in Thai junior high school students.

As a critical transition from childhood to adulthood, psychological adjustment to handle difficult situations in early adolescents is highly needed. The positive impacts of adversity quotient and psychological adjustment in junior high school students is realized. Thus, the need for more exploration on the level of adversity quotient and its influencing factors should be examined. Such understanding could help school personnel and community healthcare providers responsible for the mental health of students and teenage patients to promote their psychological well-being. Strong adjustment mechanisms through adversity quotient and its influencing factors could be enforced. This present study aimed to determine the level of adversity quotient among Thai junior high school students in Muang district of Chon Buri province.

## 2. Methods

This cross-sectional and correlational study, the level of adversity quotient and associations with its influencing factors among junior high school students in Muang district of Chon Buri province were determined.

### 2.1. Study population and sample

The study population was 1634 junior high school students, i.e., grade 7–9, in all 3 high schools in Muang district of Chon Buri province in the academic year of 2017. Participants were the study population who were eligible based on the following inclusion criteria. Participants had to be able to read, write, and communicate in Thai language, have no physical or psychological problems prohibiting completing a self-administered questionnaire, and be consented by their parents or guardians. The sample size was estimated based on the equation of Tabachnick and Fidell,<sup>16</sup> i.e.,  $N = 104 + m$  where  $m$  is the number of independent variables. With 3 independent variables, a total of 107 participants were needed. To compensate for a 20% of incomplete questionnaires, 129 participants were required. The number of participants that represented grade 7–9 was recruited proportional to class size. Students from each of all classes from 3 schools were selected using simple random sampling.

### 2.2. Measurements

The self-administered questionnaire consisted of 5 parts. For internal consistency reliability, 30 individuals with characteristics comparable to the participants. Were requested to complete the questionnaire and Cronbach's  $\alpha$  coefficients were calculated for applicable parts as follows.

The first part collected demographic characteristics including gender, age, religion, class (i.e., grade 7–9), cumulative grade point average (GPA), marital status of the parents, family monthly income, daily allowance, daily allowance sufficiency, number of siblings, leisure activities, and smartphone or tablets applications used.

The second part was evaluated using the adversity quotient assessment scale of Thitipanichayangkoon<sup>17</sup> which was developed based on Stoltz's concept of adversity quotient. With a total of 40 questions, there were 10 questions for each of the 4 components of adversity quotient. The response was a 5-point rating scale ranging from 1 "not at all true" to 5 "almost always true," with a possible total score of 40–200 points. In this study, the scale had a high internal consistency reliability with a Cronbach's  $\alpha$  coefficient of 0.93.

The third part evaluated authoritative parenting using the 20-item authoritative parenting scale of Thitipanichayangkoon.<sup>17</sup> The scale was modified from the original scale of Saengwipa<sup>18</sup> which was developed based on the concept of Baumrind.<sup>13</sup> With a response format of 5-point rating scale ranging from 1 "not at all true" to 5 "almost always true," the possible total scores were 20–100 points of which higher scores indicated a higher level of authoritative parenting. In this study, the scale had an acceptable internal consistency reliability with a Cronbach's  $\alpha$  coefficient of 0.71.

The fourth part assessed optimism using the Life Orientation Test (LOT-R) of Maturapodpong<sup>19</sup> which was developed based on the optimism concept of Scheier and Carver.<sup>12</sup> The 16 questions evaluate the attributes of positive future expectations, hope, and self-efficacy. With a response format of a 5-point rating scale ranging from 1 "not at all true" to 5 "almost always true," the possible total scores were 16–80 points of which higher scores indicated a higher level of optimism. In this study, the scale had a high internal consistency reliability with a Cronbach's  $\alpha$  coefficient of 0.84.

The last part evaluated rumination using questions modified from the work of Thanoi et al.<sup>20</sup> The Thai version was translated from the scale developed by Nolen-Hoekseman and Morrow.<sup>21</sup> The scale contained 22 items. With a response format of 5-point rating scale ranging from 1 "almost never" to 5 "almost always," the possible total scores were 22–110 points of which higher scores indicated a higher level of rumination. In this study, the scale had a high internal consistency reliability with a Cronbach's  $\alpha$  coefficient of 0.92.

### 2.3. Data collection procedures

Once approved by the Ethics Committee for Human Subjects, the researchers approached the directors of target schools to request to conduct the study. Upon permission from the director, the researchers approached

the teacher supervising each class to conduct the survey. Prospective participants were informed about the objectives, process, and voluntary and anonymous nature of the study. Students willing to participate in the study were requested to ask their parents for consent at home. Students returning to the school with signed consent from the parents were asked to complete the questionnaire which took about 45–50 min.

## 2.4. Data analysis

Descriptive statistics including mean with standard deviation (SD) and frequency with percentage were used to analyze demographic characteristics and selected factors. Associations between scores of adverse quotients and each of the influencing factors were tested using Pearson's product-moment correlation analysis. Statistical significance was set at a type I error of 5% (or *P*-value of <0.05). All statistical analyses were performed using the software program SPSS version 26 (IBM Corporation, Armonk, New York, United States).

## 2.5. Ethical consideration

The study was approved by the Ethics Committee for Human Study of Burapha University (approval number: Sci 076/2561). The participants were informed about the voluntary and anonymous nature of the study. Written informed consent from participants and their parents was obtained. Withdrawal from the study at any time was allowed with no reasons needed and participants were ensured no impact on how they were treated at the school.

## 3. Results

### 3.1. Sample characteristics

Of the 129 participants (Table 1), there were slightly more men (55.8%) than women. They were 14 years and 2 months old on average. The number of participants in grade 7–9 was relatively comparable, i.e., 35.7%, 33.3%, and 31.0% in grade 7–9, respectively. The cumulative GPA was 3.09 on average. Most of them were Buddhist (99.2%) while the rest were Christian (0.8%). Most of their parents were living together (53.5%), followed by separated (24.8%) and divorced (14.7%). The majority of participants had a monthly family income of 10,001–15,000 Baht (29.5%), followed by 5001–10,000 Baht (2.7%). About 3-quarters reported a sufficient household income (77.3%). Participants reported a daily allowance of 70.23 Baht on average. Most of them perceived their daily allowance as sufficient (87.6%). The majority reported 2 siblings (41.9%), followed by 3 siblings (30.2%). Most of them enjoyed watching movies in leisure time (89.1%), followed

Characteristics	<i>n</i>	%
<i>Gender</i>		
Men	72	55.8
Women	57	44.2
<i>Age (years)</i> (mean ± SD = 14.23 ± 1.03)		
13	39	30.2
14	42	32.6
15	43	33.3
16	5	3.9
<i>Education level</i>		
Grade 7	46	35.7
Grade 8	43	33.3
Grade 9	40	31
<i>Religion</i>		
Buddhism	128	99.2
Christianity	1	0.8
<i>Parents' living arrangement</i>		
Living together	69	53.5
Separated	32	24.8
Divorced	19	14.7
Father/Mother deceased	9	9
<i>Number of siblings</i>		
0 (i.e., only child)	2	1.6
1	24	18.6
2	54	41.9
3	39	30.2
4	10	7.8
<i>Monthly family income (Baht)</i>		
1–5000	15	11.6
5001–10,000	28	21.7
10,001–15,000	38	29.5
15,001–20,000	26	20.2
20,001–25,000	14	10.9
≥25,001	8	6.2
<i>Monthly family income sufficiency</i>		
Sufficient	100	77.5
Insufficient	29	22.5
<i>Daily allowance (Baht)</i> (mean ± SD = 70.23 ± 24.16)		
20–40	13	10.1
50	19	14.7
60–90	59	45.7
100	34	26.4
120–140	4	3.1
<i>Daily allowance sufficiency</i>		
Sufficient	113	87.6
Insufficient	16	12.4

Note: SD, standard deviation.

**Table 1.** Baseline characteristics of the sample (N = 129).

by listening to music (85.3%), playing video games (82.2%), playing with friends (44.2%), and playing sports (31.8%). For applications in smartphones or tablets, they watched movie/cartoon/video clips on YouTube for 3.54 h/day (SD = 2.63) on average and played online video games for 0.16 h/day (SD = 0.47).

### 3.2. Descriptive statistics

The participants had scores of adversity quotient in a range of 81–190 points with a mean of 138.77 (SD = 21.25) points considered as a moderate level. For rumination and optimism, these 2 factors were at a moderate level. Lastly, authoritative parenting was at a high level (Table 2).

### 3.3. Pearson correlation analysis of the variables

Before performing Pearson correlation analysis, the assumptions were tested. All variables were an interval scale, follow normal distributions, no outliers. Also, the data was from a random sampling.

Adversity quotient was significantly, positively correlated with authoritative parenting at the highest level ( $r = 0.60, P < 0.01$ ), followed by optimism at a moderate level ( $r = 0.38, P < 0.01$ ), and rumination with a low level ( $r = 0.25, P < 0.01$ ; Table 3).

## 4. Discussions

The correlational study on the associations of adversity quotient and its influencing factors among junior high school students found that adversity quotient was at a moderate level. This could be attributable to the fact that students in this study were responsible and endured the problems as reflected by their cumulative average GPA of 3.09. In addition, these students lived in Muang district which is situated at the center of the province.

This means that they lived in an urban environment, therefore they faced a fast-paced life, intense competition, and frequent problems. As a result, these students needed to be responsible, endure the problems, and manage the obstacles effectively. However, with limited experience, these students might not foresee the consequences.

As a result, their adversity quotient was at a moderate level. For individual components of adversity quotient, Endurance, Ownership, and Control were at a relatively high level. It could be explained that these students might excel in these specific areas. They could be more resilient, accountable, and capable of maintaining a sense of control over challenging situations. This finding is consistent with a previous study in junior high school students in Ayutthaya province of which Endurance was at the highest level, followed by Ownership.<sup>22</sup>

All 3 factors influencing adversity quotient were found significantly and positively correlated with adversity quotient. Authoritative parenting which was found at a high level was positively correlated with adversity quotient at a high level. This could be because authoritative parenting could enrich love, understanding, and warmth. Authoritative parenting also teaches adolescents how to handle problems rationally, consider the impact of each alternative for solution, and be responsible for their problem-solving decision.<sup>14</sup> Cultivating such

Items	Pearson's correlation coefficient (r)	P-value
Rumination	0.25*	<0.01
Optimism	0.38*	<0.01
Authoritative parenting	0.60*	<0.01

Note: \* $P < 0.01$ .

**Table 3.** Correlations between adversity quotient and influencing factors (N = 129).

Factors	Mean	SD	Range of scores		Level
			Possible	Actual	
Adversity quotient overall score by components	138.77	21.25	40–200	81–190	Moderate
Control (C)	33.95	5.88	5–50	18–48	Relatively high
Ownership (O)	34.84	5.98	5–50	21–50	Relatively high
Reach (R)	33.7	6.18	5–50	21–48	Moderate
Endurance (E)	36.29	5.91	5–50	21–48	Relatively high
Rumination	64.8	16.75	5–110	24–100	Moderate
Optimism	47.86	6.79	5–80	33–70	Moderate
Authoritative parenting	71.72	11.15	5–100	38–96	High

Note: SD, standard deviation.

**Table 2.** Scores and levels of study factors (N = 129).

positive traits could gradually strengthen endurance to overcome difficulties with a positive attitude. Ultimately, adversity quotient could be adequately developed. Our finding is consistent with a study in one of the provinces in Thailand, in which authoritative parenting was found to be moderately, positively associated with adversity quotient.<sup>15</sup> And finding is the higher the level of adversity quotient and authoritative parenting, the higher the academic achievement of college students.<sup>23</sup>

Optimism was found at a high level and positively, and moderately correlated with adversity quotient. Optimism allowed these students to perceive the outcomes as feasible which could enhance their confidence and effort to reach their goal. Such a goal could help build up a positive outlook on their future life. Junior high school students could be highly motivated to face and solve obstacles and difficulties. Our finding is consistent with the study of Rungsantia<sup>24</sup> revealing that optimism was positively associated with problem-solving strategies with statistical significance. And this finding is consistent with a previous study of working students at the University in Indonesia found that there is a positive and significant relationship between optimism and the adversity quotient of working students or in other words, if the optimism of working students is high, then the level of adversity quotient of working students is also high.<sup>23</sup>

Rumination was found at a moderate level and moderately, positively correlated with adversity quotient, which is opposite to the expected negative relationship. Rumination arises when adolescents face difficulties and their negative thoughts have been pondered repeatedly. These detrimental thoughts pose a high risk of emotional distress which could lead to anxiety and depression, and eventually suicidal ideation.<sup>10</sup> Our unconventional result could reflect a thought immediately responding to the present challenge. This relatively brief rumination might not weaken their long-term ability to overcome difficulties since they could also possess other constructive attributes to negate the negative effect of rumination. There has been a limited body of literature on the association between rumination and adversity quotient. A study in Thai adolescents reveals that rumination is a mediating factor to the negative thought and the problem-solving process, both effective and ineffective ones, that could lead to depression.<sup>25</sup> With a limited literature and inconclusive findings, rumination and its association with adversity quotient should be further studied.

#### 4.1. Implications of the study

Our findings could be useful in certain areas to improve mental health among junior high school students. In community and school nursing care, strategies to strengthen

adversity quotients in these students could be done by enhancing optimism and authoritative parenting styles in schools with similar contexts. In academics, adversity, and its influencing factors, i.e., optimism and authoritative parenting should be taught and trained. School administrators and policymakers should incorporate strategies to enhance the adversity quotient in the policy and practice. In nursing research, studies on other influencing factors on adversity quotient should be conducted to better represent a fast-paced changing society and to provide a better understanding which leads to proper innovation intervention. These suggestions can ensure the updating and complexity of the study.

#### 4.2. Study limitations

This study has a limitation. Since students were in the urban area of Chon Buri province, certain psychosocial dispositions could be different from those in rural areas. Generalization of our results to students in rural areas is somewhat limited and cautious. More studies under a broader socioeconomic status and environment should be conducted. Since rumination was positively correlated with adversity quotient, readers should be cautious while interpreting the association between these variables, and further studies with a more diverse group of junior high school students are warranted.

### 5. Conclusions

The correlational study among Thai junior high school students in an urban area revealed a moderate level of adversity quotient and its positive correlation with optimism and authoritative parenting. Positive correlation between rumination and adversity quotient warrants further studies in students with more diverse socioeconomic status and environment.

### Acknowledgment

The study was financially supported by the Faculty of Nursing, Burapha University. The authors are grateful to school administrators and teachers for their assistance and to student participants for their invaluable contribution.

### Ethical approval

The study was approved by the Ethics Committee for Human Study of Burapha University (approval number: Sci 076/2561).

### Conflicts of interest

All contributing authors declare no conflicts of interest.

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