Original Article

The Selected Factors Related to Adversity Quotient [AQ] of The First Year Students of Naresuan University

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Objective: The present study aimed to explore the relationship between five selected factors and the adversity quotient [AQ], as well as to construct predictive equations for AQ.

Materials and Methods: Participants 351 first year students of Naresuan University. The instruments used for the data collection process were self-reported questionnaires, including the demographic questionnaire, the survey of the selected factors related to adversity quotient, and the adversity quotient test. The data were analyzed and reported using frequency, percentage, mean and standard deviation and the relationships between factors were examined by Pearson Product-Moment Correlation Coefficient.

Results: Four selected factors including emotional quotient [EQ], enthusiasm, self-esteem, and sense of personal freedom were found to be correlated with AQ, while dominance could not demonstrated any significant relationship with AQ. However, only EQ and sense of personal freedom could predict AQ. Combination of both factors could explained the variance of AQ around 12 percent.

Conclusion: Educational institutes and related parties should considered the importance of the above factors that were correlated with AQ, especially Emotional Quotient and Sense of Personal Freedom. Integration of this knowledge in the curriculum arrangement, as well as individual development program for students, may be beneficial, especially for those with a low AQ score, in order to improve those students' capacities to overcome difficulties in their lives.

Keywords: Relationship, The selected factors, Adversity quotient

People encountered different kind of challenges throughout their lives. Different kind of challenges presented itself to different age groups. One of the challenges for infants was the need for others to feed them. Adolescents seek out social acceptance and inclusion in peer groups. Many adults aimed to enhance their work efficiencies. The elderly need to adjusted and adapted to their declining physical health. Each problem required specific solution. Endurance, which is a part of the Adversity Quotient, helped overcome the hardship and encouraged happy quality of life. Thus, self-development in many aspects including Adversity Quotient is essential.

Adversity Quotient [AQ] is a concept that psychologists and experts in many fields have been interested in. Key person among these is Paul G. Stoltz. Stoltz[1] defined AQ as one's ability to reflected response patterns or behaviors as a result of brain activities when facing adversities. Stoltz's study on successful people in various careers by using intelligence test revealed that intelligence was not the key indicator of success but AQ was.

Further studies indicated that AQ could be developed at any age. Nonetheless, there are many determinants involved in the improvement of AQ as studied by various aspects. However, these studies'

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subjects were limited to secondary school students. Also, other factors such as Emotional Quotient [EQ], Enthusiasm, Dominance, Self-Esteem, and Sense of Personal Freedom have not been studied among the higher education level. The present study focused on the first year undergraduate students who were at the turning point of life and may have to overcome several obstacles. If the associated factors relating to and predicting AQ are identified, it could help enhancement of these aspects before they graduated and enter the job market.

Objective
1) To study the relationships between the selected factors which are EQ enthusiasm, dominance, self-esteem, and sense of personal freedom, with AQ.
2) To explore the predictors of AQ from the selected factors, that are EQ enthusiasm, dominance, self-esteem, and sense of personal freedom.

Materials and Methods
Participants
Participants was the first year undergraduate students in the semester 1 of the academic year 2015 of Naresuan University. The sample size was calculated by WG Cochran's sample size formula[2]:

$$n = \frac{P(1-P)Z^2}{E^2}$$

where P = the proportion or degree of variability (= 0.3 assumed in this study), Z= the value of the standard normal variable given (1.96 for a 95% CI), and E = the acceptable sampling error (= 0.05 assumed in this study)). The total of 351 participants were included then quota sampling was employed. The participants voluntarily participated and were willing to respond to the questionnaires.

This study was conducted with the approval of the Siriraj Research Affair and Siriraj Institutional Review Board [SIRB], Faculty of Medicine, Siriraj Hospital, Mahidol University. Informed consent was obtained from all of the participants.

Measures
The demographic questionnaire was used for identifying gender and cluster.
The survey of the selected factors related to adversity quotient included 50-item test of the 5 selected factors related to Adversity Quotient in 5-point scale with Cronbach's alpha coefficient at 0.92.

Adversity quotient test of 32-item Adversity Quotient test in 5-point scale with Cronbach's alpha coefficient at 0.70.

Procedure
Permission was obtained from Deans of Narasuan University to allowed the process of data collection who was informed of the purposes and protection rights of thestudents who participated. Participation in the present study was voluntary. Self-reported questionnaires were administered in a quiet classroom setting. The demographic data, the survey questionnaire of the selected factors related to adversity quotient and Adversity quotient test were reported by frequency, percentage and mean. Pearson correlation coefficient was calculated to assessed for statistical significance for the relations the selected factors related to adversity quotient and Adversity quotient, and simple linear regression coefficient was analyzed.

Ethical consideration
The present study was conducted with the approval of Siriraj Institutional Review Board [SIRB], Faculty of Medicine, Siriraj Hospital, Mahidol University; Si. 225/2015.

Results
Demographic data
The sample were 262 females (74.6%) and 89 males (25.4%). They were selected from Health Sciences, Science and Technology, and Social Sciences clusters, 117 each (33.3%).
Three selected factors with high average scores were: emotional quotient (mean $\pm$ SD of 3.91$\pm$0.38), sense of personal freedom (3.85$\pm$0.49) and self-esteem (3.59$\pm$0.44). Two selected factors with moderate average scores were: enthusiasm (3.03$\pm$0.47) and dominance (2.81$\pm$0.59) while the average AQ score was high (130.26$\pm$12.09).

The correlation coefficient between the selected factors related to AQ
AQ had poor positive correlation with 5 factors with correlation coefficient (r) of 0.31, 0.27, 0.22, 0.21 and 0.09 for emotional quotient, sense of personal freedom, self-esteem, enthusiasm and dominance respectively (p-value <0.01, except dominance).

The predictors of Adversity Quotient
Emotional quotient and sense of personal

freedom [SF] could predict AQ with significance level at 0.01. The prediction equations of Adversity Quotient were as follows: raw-score regression equation was $AQ = 85.86 + 7.31_{EQ} + 4.08_{SF}$.

Discussion
According to the results, several issues regarding the proposed hypotheses could be explained

1) The selected factors that have positive relationships with AQ were emotional quotient, enthusiasm, self-esteem, and sense of personal freedom while dominance was not related to AQ. Each factor could be discussed as followed:

Emotional Quotient was positively related to AQ. EQ referred to an ability to be aware, understand, manage and be in control of one's emotion to meet or solve a problem with patience, endurance, carefulness, and to overcome the obstacles. This was supported by the concept of Goleman[3] which described the characteristics of people with high EQ as emotionally stable, good at decision making, self-controlled, enduring, not impulsive, able to accept disappointment, empathetic, socially aware, tenacious, and able to cope with difficulties. Also, it complied with the suggestions of Terdsak Dejkong[4] and Weerawat Punnitamai[5] on people with high EQ that they enabled to encounter and solve the problem, and could adjust themselves to any situation due to their understanding of their own and other's emotion, emotional stability, and self-control. Finally, the findings of Methawadee Sangkhaman[6], Lakana Khankreao[7] and Waleerat Janloer[8] also reported that EQ positively correlated with AQ even among different group of subjects.

Enthusiasm had positive correlation with AQ as it helped people to be determined, ambitious, daring, and tenacious to develop themselves continuously in the face of adversities. This is similar to the findings of McClelland[9] and Parichat Unprasert[10] which described some characteristics of people with high enthusiasm such as readiness, endurance, and tenacity. This is also supported by the studies of Methaya Khoonthaisong[11] and Rachapoom Pangma[12] which discovered that enthusiasm positively related to AQ.

Self-esteem had a positive relationship with AQ. The reason might be that self-esteem is a feeling or attitude towards themselves as worthwhile, capable, confident, emotionally stable, and think positive with the problem. Thus, they have the strength within and can use it in face of adversities. This is coherent with Ratree Sangean[13]'s proposal that self-esteem is

developed systematically. When well-esteemed, an individual will have sense of self-worth, self-confidence, and self-esteem which comprised the characteristics of the climber type whose AQ is high. This is also consistent with the notion of Sununta Kanenok[14] which summarized the attributes of high self-esteem person as having sense of self-worth, high expectations with minimal anxiety, optimism, expressiveness, emotionally stable, confident, and decisive. Lastly, this finding is coherent with the research of Methaya Khoonthaisong[11], Rachapoom Pangma[12] and Waleerat Janloer[8] which demonstrated the same pattern of association in younger subjects.

Sense of Personal Freedom had significantly positive correlation with AQ. This is because it helped one realized and accepted what really happens, believe in oneself, endure the hardship, and have the freedom to think, decide, and act when faced with adversities. One considered obstacles and challenges as something that could happen, and not a problem. In addition, one is confident, self-efficient, endures, and is independent. Hence, one can fully use self-capacity to manage the situation[11,12].

Dominance had no significant relationship with AQ. This may be because dominance referred to the ability to influence, persuade, or force others physically, behaviorally or mentally to respond to one's need or serve one's goal. It could also inferred to in stating fear or respect, or attempted to dominate others. In other studies, people do not always respond well to the problem because they may ordered others to do it instead. Another reason is that the present study was conducted in undergraduate students, which differed from all previous studies which were conducted in secondary school students. Although this two groups are adolescents which focused on studying most of the time, secondary school students were found to be more self-reliant. As secondary school environment was more competitive, many attended the tutorial classes which also provided them with better chances to be accepted by leading universities. Therefore, dominance positively related to AQ in these subjects. Although undergraduate students spend most of their times studying which required self-reliance, they also studied with their peers which required more collaborations. Their objective of studying is to graduate and apply their knowledge to their work. Therefore, they competed more with themselves and less with others. In addition, undergraduate environments encouraged clubs activities which attracted like-minded individuals and

Table 1. Stepwise multiple regression analysis detecting the selected factors as predictors of adversity quotient of the first year undergraduate students of Naresuan University (n = 351)

Selected Factors	R	R^2	St d. error of the estimate	b	St d. error of beta	p-value
Emotional Quotient	0.31	0.09	11.49	7.31	1.77	0.000
Sense of Personal Freedom	0.34	0.12	11.37	4.08	1.38	0.000
		Constant = 85.86				

allowed them to learn how to work with others. Inclusion was more significant than dominance. As mentioned, dominance then had no significant correlation with AQ in this sample of undergraduate students and thus is opposed to the findings of Methaya Khoonthaisong[11], Methawadee Sangkhaman[6], Rachapoom Pangma[12], and Lakana Khankreao[7] whose studies indicated that dominance had positive relationship with AQ.

2) The selected factors that could predict AQ were EQ and sense of personal freedom with the predictive power at 12%. This illustrated that people who have higher EQ and sense of personal freedom, will have higher AQ. When faced with adversities, EQ and sense of personal freedom will helped people to perceived the problem realistically as well as increased awareness, comprehension, management, and in control of their own emotions, understand, managed and controlled their own emotion occurring at that time. When emotion and feeling are barred and people are self-confident, enduring and independent in thinking, deciding and responding, they can fully use their capacities to manage the situation.

The selected factors in the present study were limited to psychological factors that could predict adversity quotient partially, other factors relating to psychology, neurophysiology and psychoneuro-immunology should be studied in the future in order to be used as a guideline for development of adversity quotient more effectively.

Limitations
1) The selected factors in this study were psychological factors only. Hence, it could not predict the overall Adversity Quotient.
2) Subjects in this study were exclusively the first year undergraduate students of Naresuan University. Thus, its results could not be applied to other groups of sample such as undergraduate students in other universities.

Recommendations
1) Since the selected factors in this study were limited to psychological factors that could predict Adversity Quotient partially, other factors relating to psychology, neurophysiology and psycho-neuroimmunology should be studied in the future for using as a guideline to develop Adversity Quotient more effectively.
2) The research of the selected factors related to Adversity Quotient should be conducted with other sample groups such as undergraduate students in other parts of Thailand; or among working age, middle age or elderly for comparison or to support this study.

Conclusion
Emotional quotient, enthusiasm, self-esteem and sense of personal freedom were found to have positive relationships with adversity quotient. Thus educational institutes and related parties should considered the importance of the above factors, especially emotional quotient and sense of personal freedom by applying them in their curriculum. This is to improved the students' capacities to be robust and ready to encountered problems to move on for a better living.

What is already known on this topic?
Emotional quotient, enthusiasm, dominance, self-esteem, and sense of personal freedom had correlation and could predict adversity quotient in secondary school students.

What this study adds?
Four selected factors including emotional quotient, enthusiasm, self-esteem, and sense of personal freedom were found to be correlated with adversity quotient, while dominance failed to demonstrated any significant relationship with adversity quotient. However, only emotional quotient and sense of personal freedom could predict adversity

quotient among undergraduate students.

Potential conflicts of interest

None.

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