Increasing Graduation Rate: Academic Hardiness, Academic Locus of Control, Tolerance of Ambiguity, Students' Engagement and Automatic Negative Thoughts

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Abstract
Academic hardiness refers to personality characteristics that help individuals deal with academic stress and academic challenges, reducing the probability of dropping out from a program of study before graduation. A high attrition rate has a significant impact on the students' finance and well-being. This study investigates the relationships between academic hardiness with the academic locus of control (ALOC), tolerance of ambiguity, students' engagement, and automatic negative thought (ANT) among university students in Malaysia. A cross-sectional survey was conducted by recruiting 94 participants via the purposive sampling method. The participants were Malaysian university students aged 18 to 26 years (M = 21.69 years; SD = 1.90 years). Female participants (n = 58, 55.24%) were slightly more than male participants (n = 47, 44.76%) responded to this survey. The instruments used to collect the data consist of the Academic Hardiness Scale, Academic Locus of Control Scale, Tolerance of Ambiguity Scale, University Students' Engagement Inventory, and Automatic Negative Thoughts Scale. Finding revealed that ALOC was positively correlated with control, commitment, and challenge components of academic hardiness. Tolerance of ambiguity was found no significant relationship with control, commitment, and challenge components of academic hardiness. University students' engagement was positively correlated with control, commitment, and challenge components of academic hardiness. ANT was correlated negatively with control and challenge components but no significant relationship commitment components of academic hardiness. Academic hardiness was significantly predicted by ALOC, university students' engagement, and ANT, but not tolerance of ambiguity. The findings of this study would provide practical insights for university counsellors to handle Malaysian university undergraduates who wish to terminate their study prematurely. Moreover, this study provides exploratory findings on the preventative measures of improving academic hardiness among students at high risk of dropping out.
Keywords: Academic Hardiness, Academic Locus of Control, Tolerance of Ambiguity, Students' Engagement, and Automatic Negative Thoughts

College Dropout and Academic Hardiness

Students' dropout from educational institutions remains a central issue faced by educational institutions worldwide (Tentsho et al., 2019). Drop out has severe consequences, which will directly affect individuals, institutions, and society, including wasted time, the possibility of psychological trauma, adverse labour market outcomes, developing a negative image of the institutions, and directly affecting its enrolment rate (Sosu & Pheunpha, 2019). The rate of dropout varies around the world. In Malaysia, the dropout rate is 29% in 2018, significantly higher than in other countries (Amran, 2018).

The field of guidance and counselling plays a significant role in student retention. Counsellors regularly provide counselling services to students identified as at-risk of dropping out (Pearson, 2012). A study conducted by Rickinson and Rutherford (1995) also mentioned that most university students tend to consult personal tutors for advice, and minority university students are referred to counselling services before withdrawing from the university. Counsellors potentially reduce the dropout rate by increasing academic hardiness, which is one of the critical factors that might explain the phenomenon of dropout (Maddi et al., 2002).

Hardiness refers to personality characteristics or attitudes that help individuals manage stressful and adverse circumstances by turning them from a threat or debilitating experience into growth opportunities through courage and motivation (Maddi, 2002; Maddi et al., 1979). Hardiness is composed of three intercorrelated components: control, commitment, and challenge (Maddi et al., 1979). Academic hardiness provided a framework in explaining why some students are willing to accept and pursue academic challenges, whereas others avoid academic challenges even considering dropping out. According to Benishek and Lopez (2001), the three components of academic hardiness are commitment, challenge, and control. Commitment is the willingness to give effort and engage in personal sacrifices to achieve academic excellence, demands of individual courses, instructors, or personal interests even if the circumstances are stressful. Challenge is the willingness to actively seek out complex academic challenges and expect difficult academic coursework as part of normal development. Control is defined as students' beliefs that they can determine and achieve their educational outcomes through personal effort and effective emotional self-regulation as they face academic disappointments and academic stresses.

Trice (1985) has defined academic locus of control as a belief that their behaviours directly impact academic success and adjustment. It indicates students' confidence and expectancy of their academic success and performance are determined by either individual factors or environmental factors.

Budner (1962) defined tolerance of ambiguity as ambiguous situations are perceived as desirable and comfortable. According to Furnham and Marks (2013), individuals who have a low tolerance for ambiguity tend to perceive uncertainty and ambiguity situations as threats that cause reactions of stress, delay, denial, suppression, and avoidance. Furthermore, students who have a low tolerance for ambiguity indicates lower affinity to challenge which refers to a student tends to avoid challenging academic coursework or academic challenge and view them as threatening (Benishek & Lopez, 2001; Rush et al., 1995).

Student engagement is the willingness of students to involve themselves in school activities (Gamoran & Nystrand, 1992). Furthermore, students' engagement is known to act as a protective factor that prevents school dropout and student burnout (Macoro et al., 2016).

Automatic negative thoughts (ANT) are dysfunctional or distorted thinking, leading to maladaptive functioning (Clark & Beck, 2011). A study has revealed that ANT is negatively associated with hardiness (Khaledian et al., 2013).

The issue of dropout is significantly related to high academic stress as it affects students in multiple ways (Kamtsios & Karagiannopoulou, 2015). Unfortunately, several studies have revealed that most students experience high levels of academic stress (Choi & Kang, 2012;). Academic stress is a widespread phenomenon among students, especially university students, which has been revealed to have a critical and adverse effect on all students (Abdollahi et al., 2020; Cheng et al., 2019; Hystad et al., 2009). The higher education level causes more academic stress and the worry from considering career opportunities (Elias et al., 2011). Academic stress was found to be harmful towards academic performance (Sohail, 2013), well-being (Wunsch et al., 2017), depression (Putwain, 2007), physical and psychological health (Singh & Upadhyay, 2008). However, some students can cope with academic stress and achieve high academic achievement in their study life. Hardy students appraised academic stressors differently by viewing their stressors as positive challenges rather than threats (Kamtsios & Karagiannopoulou, 2015). Since academic hardiness is an excellent protective factor for undergraduate students from the adverse effects of stressors, it calls attention to conduct research to identify the predicting power of specific variables on academic hardiness.

Research Hypotheses
The model that we are proposing is depicted in Figure 1. The research aims to study how academic hardiness correlates with the academic locus of control, student engagement, tolerance for ambiguity, and automatic negative thoughts. In this research, academic hardiness represents the dependent variable, whereas academic locus of control, student's engagement, tolerance for ambiguity, and automatic negative thoughts represent the independent variables.
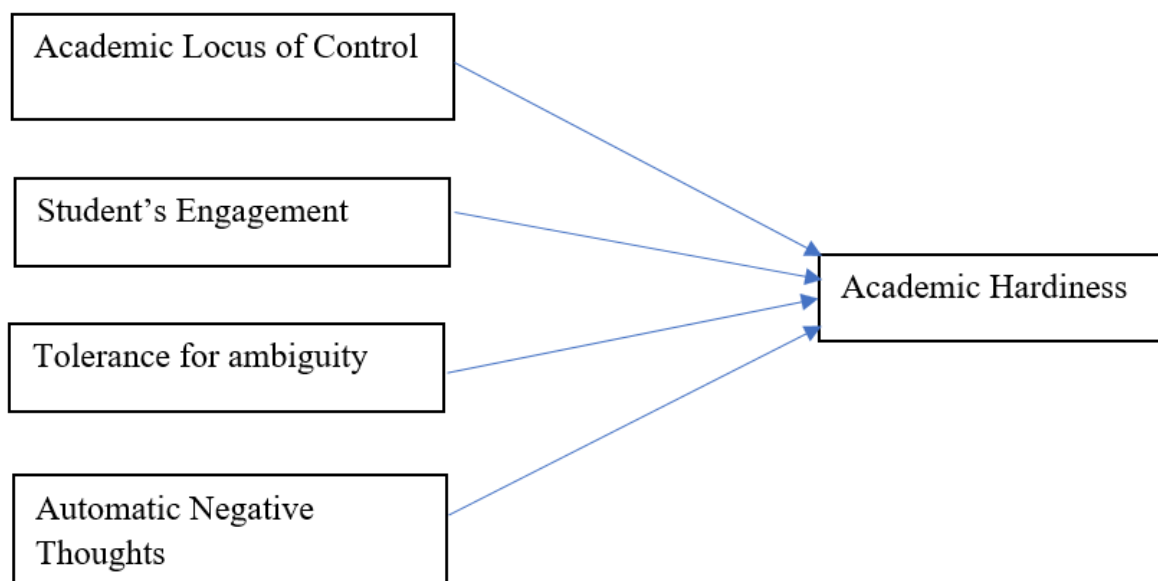

Figure 1: The conceptual framework of academic hardiness academic locus of control, students' engagement, tolerance for ambiguity, and automatic negative thoughts

H_1: There is a positive relationship between academic hardiness with the academic locus of control, tolerance for ambiguity, and student engagement but a negative relationship between academic hardiness and automatic negative thoughts.

H_{1a}: There is a positive relationship between control components of academic hardiness and academic locus of control.

H_{1b}: There is a positive relationship between commitment components of academic hardiness and academic locus of control.

H_{1c}: There is a positive relationship between challenge components of academic hardiness and academic locus of control.

H_{1d}: There is a positive relationship between control components of academic hardiness and tolerance of ambiguity.

H_{1e}: There is a positive relationship between commitment components of academic hardiness and tolerance of ambiguity.

H_{1f}: There is a positive relationship between challenge components of academic hardiness and tolerance of ambiguity.

H_{1g}: There is a positive relationship between control components of academic hardiness and students' engagement.

H_{1h}: There is a positive relationship between commitment components of academic hardiness and students' engagement.

H_{1i}: There is a positive relationship between challenge components of academic hardiness and students' engagement.

H_{1j}: There is a negative relationship between control components of academic hardiness and automatic negative thoughts.

H_{1k}: There is a negative relationship between commitment components of academic hardiness and automatic negative thoughts.

H_{1l}: There is a negative relationship between challenge components of academic hardiness and automatic negative thoughts.

H_2: There will be a significant predictor of academic hardiness by the academic locus of control, tolerance for ambiguity, student's engagement, and automatic negative thought.

Academic Hardiness and Locus of Control

Maddi (1999) found that the control component was positively correlated with hardiness. Similarly, Maddi et al (1979) also found a positive relationship between hardiness and internal locus of control. Another study by Kobasa et al (1982) had similar findings that the disposition of the control component was negatively correlated with an external locus of control. The result is aligned with Sarason et al. (1978) that college students with a higher internal locus of control had a significantly lower correlation with stressful life events than those who are strong in an external locus of control. Academic internal locus of control involves beliefs in one's own ability to determine the academic outcomes and manage academic stress through emotional self-regulation and hardy coping skills (Benishek et al., 2005). A few past research studies have revealed that hardiness is positively associated with active coping strategies and negatively related to maladaptive coping strategies, especially avoidance coping strategies (Bartone & Homish, 2020; William et al., 1992). Marôco et al (2020) stated that passive and avoidance coping strategy is associated with an external locus of control, while an active coping strategy is associated with an internal locus of control. It is consistent with the empirical evidence provided by past research (Crisson & Keefe, 1988; Folkman, 1984) that individuals with an internal locus of control apply more active coping strategies than those with an external locus of control.

Academic Hardiness and Tolerance for Ambiguity

Past studies have found that tolerance for ambiguity is significantly associated with hardiness (Atamanova & Bogomaz, 2014; Eidles-Maoz, 2006; Franco et al., 2020; Rezae et al., 2009). Ambiguity intolerance was found to be negatively related to challenges by Bardi et al. (2009). Individuals with ambiguity intolerance are more likely to avoid challenges as they perceive stressful and uncertain situations as threats rather than growth opportunities. Contrary, hardy individuals possess a higher tolerance for ambiguity (Ayala & Garcia, 2017; Hutchings, 1997). A study by Vindeker et al (2016) has discovered a similar result that tolerance for ambiguity is positively correlated with hardiness among secondary school students. However, tolerance of ambiguity was found to affect hardiness indirectly in the presence of other variables, such as the need for self-development (Kuzikova, 2019).

Academic Hardiness and Students' Engagement

Lo Bue et al (2013) investigated the relationship between hardiness, work engagement, and burnout and found a positive relationship between hardiness and work engagement. The result revealed that hardiness significantly predicted work engagement through regression analysis. The same finding is also supported by several other studies (e.g., Atkinson & Martin, 2019; Choi & Kang, 2012), which showed that hardiness was a predictor of work engagement. According to Maddi (2002), hardy individuals are more likely to remain engaged than be isolated from stressful circumstances. Several studies mentioned that student's engagement is significantly related to academic hardiness (Abdollahi et al., 2020; Benishek & Lopez, 2001; Cole et al., 2004). A study conducted by Vizoso et al (2018) revealed a similar result that hardiness is positively associated with student engagement, however negatively associated with a maladaptive coping strategy. The possible explanation is that low-hardiness students may believe that an external problem exists which cannot be overcome with personal effort, leading students to fall into a circle of academic disengagement (Marôco et al., 2020). Thus, the present study hypothesized that student engagement is positively correlated with academic hardiness.

Academic Hardiness and Automatic Negative Thoughts

Cognitive factors appear significantly correlated with hardiness. Research has shown that a wide range of cognitive factors plays a vital role in cultivating the three components of hardiness (Nowack, 1989; Zhang & Wong, 2011). A study conducted by Williams et al (1992) revealed that hardiness was significantly correlated with maladaptive coping in the form of wishful thinking and avoidance coping. The study showed that individuals with maladaptive coping are more likely to have low hardiness. A cross-sectional study conducted by Mahmoud et al (2015) investigated the relationship between coping and negative thinking. The study found that negative thinking significantly predicted maladaptive coping, while maladaptive coping has no relationship with positive thinking

Khaledian et al (2016) found that there is a negative and significant relationship between hardiness and irrational beliefs. This result is supported by a quasi-experimental intervention study conducted by Jafar et al (2016) that negative automatic thoughts negatively correlate with psychological hardiness. The control group of this study showed a remarkable increase in psychological hardiness after committing to cognitive behavioural therapy-based stress management, which aimed at disputing automatic negative thoughts and adopting effective strategies to deal with stressful situations.

Predictors of Academic Hardiness

Kobasa and Maddi stated that locus of control has predictive power on psychological hardiness theoretically. Maddi also found out that the control component has a positive relationship with psychological hardiness. Several studies mentioned that use Rotter's concept of locus of control to measure the control component of hardiness. Past researchers revealed that locus of control has significant predictions on coping styles (Petrosky & Birkimer, 1991). A study conducted by Bilibani et al (2020) showed that coping styles significantly correlate with locus of control. It is further supported by a longitudinal study conducted by Heffer and Willoughby (2017) aimed to explore coping styles and change among undergraduate students, which mentioned that coping styles are significantly predicted by locus of control. Besides, past studies have shown that coping styles have a significant relationship with hardiness (Nanavaty et al., 2017; Nowack, 1989). Some past studies revealed coping styles and hardiness have reciprocal predictive relationships (Besharat, 2007). It is aligned with a study conducted by Dehghani and Kajbaf (2013), which aimed to explore the relationship between coping styles and hardiness among undergraduate students. The result showed active coping styles positively predicted hardiness, while maladaptive coping styles negatively predicted hardiness. These studies have highlighted a high possibility of a significant predictive relationship between locus of control and hardiness. However, the predictive relationship between academic locus of control and academic hardiness remains unclear.

According to Kobasa's (1982) theory of hardiness, tolerance of ambiguity has a significant predictive relationship with hardiness. It is also supported by a study by (Abdellatif & Abdel-Gawad, 2020) that ambiguity of tolerance can positively predict hardiness. According to Abdellatif and Abdel-Gawad (2020), tolerance of ambiguity is associated with critical thinking, enabling an individual to have high cognitive flexibility, the ability to challenge, and thoughtful risk. Besides, a study conducted by Zhang and Wong (2011) revealed that liberal thinking style positively predicted hardiness which specifically challenged the component of the hardiness

construct. Liberal thinking style refers to an individual's tolerance to ambiguity and prefers to involve themselves in novelty and ambiguity (Zhang & Sternberg, 2005). Apart from that, past studies revealed hardiness, significantly challenge components that have a significant positive relationship with openness (Ghorbani & Watson, 2005; Merino-Tejedor et al., 2015; Zhang & Wong, 2011). Similar results were shown in Merino-Tejedor et al (2015) that hardiness is positively predicted by openness. Besides, openness has the highest predictive power on the challenge component among other hardiness components. Bardi et al (2009) argued that tolerance of ambiguity is a closely similar construct to openness. They share apparent similarities. For instance, they possess an ability to involve in challenge, novelty, and uncertainty. A study conducted by Jach and Smillie (2020) revealed that tolerance of ambiguity has a significant positive relationship with openness. An investigation revealed a positive predictive relationship between tolerance of ambiguity and openness (Jach & Smillie, 2020). Thus, the present study assumed that tolerance of ambiguity could predict academic hardiness; meanwhile, tolerance of ambiguity has higher predictive power on the challenge component. Currently, studies focused on predicting academic hardiness by tolerance of ambiguity remain sparse, highlighting a literature gap to be filled.

According to Benishek and Lopez (2001), student engagement is one predictor of academic hardiness, especially the commitment component of hardiness. It is also supported by a study conducted by Kuo et al (2017) that student engagement has a positive predictive relationship with academic hardiness. The result showed emotional engagement has a significant positive predictive relationship with all the three components of hardiness. It aligns with a study conducted by Adollahi et al (2020) that student engagements positively predict academic engagement. One objective in this study is to discover the predictive relationship between a sense of belonging to a school, academic hardiness, and academic stress. The results showed that a sense of belonging to school predicted academic hardiness. Students with high engagement commit to a school and dedicate themselves to academic tasks and school-related activities. Even the tasks and circumstances are challenging (Benishek & Lopez). Time-lagged design research conducted by Ayala and Manzano (2018) also showed similar results that student engagement has a significant predictive relationship with hardiness.

Past researchers found that hardiness can be enhanced through hardiness training programs (Maddi et al., 1999). An example of hardiness training program includes cognitive-behavioural techniques (Maddi et al., 1998). For instance, cognitive reconstructing, which involves identifying and disputing irrational or automatic negative thoughts (Hope et al., 2010). It is also supported by past research hardiness training has a significant effect on increasing hardiness among college students (Hasel et al., 2011) and nursing students (Jameson, 2014). Apart from that, several studies also revealed that hardiness is increased after disputing and decreasing their automatic negative thought through cognitive behavioural therapy-based intervention (Jafar et al., 2016). However, there is only one study conducted by Gustanti et al (2019), focusing on the effectiveness of the cognitive behavioural therapy-based intervention on academic hardiness. This study revealed academic hardiness ballooned after disputing the automatic negative thought. Therefore, a predictive relationship might exist between an automatic negative thought and academic hardiness. Besides, one study conducted by Warren and Hale (2020) revealed that rational and irrational beliefs significantly predict grit and resilience. They suggested further exploration of other non-cognitive factors based on irrational belief. A study conducted by Buschman et al (2017) provided empirical evidence

that automatic negative thoughts are rooted in irrational beliefs. Thus, the present study further investigates the predictive relationship between automatic negative thoughts and academic hardiness.

Participants

Malaysian University students who are currently pursuing their study in Malaysia were the targeted participants in this study. An online survey questionnaire was generated using Google Form and was shared on several social media, including Facebook, Instagram, and WeChat, to maximise respondents' number. The data was collected from Malaysian Universities originated from 13 states and three federal states. 94 respondents aged between 18 to 26 (M = 21.95, SD = 1.90) participated in this study. 55.3% of the respondents were female respondents (n = 52) and the remaining 44.7% (n = 42) were male respondents. All the respondents were pursuing a full-time degree course. 25.53% of the respondents (n = 24) grouped under the field of science, followed by business, finance, accounting (n = 23; 24.47%), social science (n = 17; 18.08%), education (n = 12; 12.77%), Computer, engineer (n = 11; 11.70%), and foundation (n = 7; 7.45%).

Procedures

An online survey was created with Google Form and shared on several social networking sites (e.g., Instagram, WeChat, and Facebook) to recruit participants using purposive sampling. The questionnaire consisted of different sections, including demographic information, Academic Hardiness Scale (AHS), Academic Locus of Control Scale (ALOC), Tolerance of Ambiguity Scale (TA), University Student Engagement Inventory (USEI), and Automatic Negative Thoughts (ANT). Informed consent has been obtained from the participants prior to the study. All participants have a complete understanding of the information stated in the participant information sheet. Participants were directed to the survey questionnaire after they have agreed to participate in this study. The participants were informed that their participation is wholly voluntary, and no penalty will be incurred if they rejected to take part. In addition, they can withdraw from the study as they feel uncomfortable without any consequences and punishment. The inclusion criteria of the present study include: (i) Respondents must be Malaysians, (ii) Respondents must be pursuing their study at any university in Malaysia at the time of the survey. However, Malaysian undergraduates involved in overseas exchange student programs were excluded from this study.

Questionnaire Design

The informed consent has been obtained from the participants by using the online survey via Google Form. Participants were required to provide their consent after reading the participant information sheet. The participant information sheet helped participants fully understand the information stated in the informed consent. The participant information sheet contained details of the survey, such as the purpose of the study, confidentiality, voluntary participation, and the researchers' contact information, which enabled participants to reach researchers as they faced difficulties or problems throughout the survey. The information of participants had been kept private and confidential which the data was only used for academic purposes. This informed consent also ensured that their participation was wholly voluntary. However, they can withdraw from the study as they feel

uncomfortable without any consequences and penalties. Subsequently, the participants were directed to the survey questionnaire.

An online questionnaire was created via Google Form and distributed on multiple Social Networking Sites such as Instagram, WeChat, and Facebook to elicit responses. The survey questionnaire consisted of numerous sections, which included demographic information, Academic Hardiness Scale (AHS), Academic Locus of Control Scale (ALOC), Tolerance of Ambiguity Scale (TA), University Student Engagement Inventory (USEI), and Automatic Negative Thoughts (ANT). The respondents are required to provide information about their gender, age, name of university, course, and status of study (Full time/Part-time). All items were retained as the instruments showed an acceptable Cronbach's alpha range of .70. Therefore, there was no alteration made to the finalized version of the questionnaire.

Instruments
Academic Hardiness Scale (AHS). This scale was developed by Benishek and Lopez (2001); with an 18-item self-report instrument on a four-response Likert scale. This instrument was designed to gather information about student attitudes regarding academic success. The academic hardiness scale can be categorised into three dimensions which include control, commitment, and challenge. The four response options range from 1 = completely false to 4 = completely true. Therefore, the possible minimum score was 18, and the maximum was 72. A sample item from this scale includes "*Take my work as a student seriously*." The higher the score of academic hardiness indicates a higher level of academic hardiness. In the current study, the α coefficient for AHS is .70.

Academic Locus of Control Scale (ALOC). The ALOC (Curtis & Trice, 2013) is a 28-item, 5-point Likert scale assessing students' internal locus of control. A sample item from this scale includes "*I sometimes feel that there is nothing I can do to improve my situation.*" The lower the score of the academic locus of control scale indicates a stronger internal generalised belief in self-determination of the outcome (Curtis & Trice, 2013). In the current study, the α coefficient for ALOC is .77.

Tolerance of Ambiguity Scale (TA). Budner's (1962) 16-items scale was used to assess the tolerance of ambiguity. A sample item from this scale is "*I avoid settings where people don't share my values.*" The higher the score in TA indicates the greater affinity for the challenge (Rush, 1996). In the current study, the α coefficient for TA is .74.

University Student Engagement Inventory (USEI). University students' engagement inventory (Marôco et al., 2016) contains 15 items. USEI was used to measure the commitment of students in an academic setting. USEI has three dimensions which include behaviour engagement, emotional engagement and cognitive engagement. The higher score of USEI indicates a higher level of commitment and engagement in the academic context. Besides, USEI adopts a Likert-type scale with options from '1-never to 5-always'. A sample item from this inventory includes "*I pay attention in class.*" Item 1 to item 5 is related to the behavioural engagement dimension, item 6 to item 10 is related to emotional engagement, and item 11 to item 15 is related to cognitive engagement. In the current study, the α coefficient for USEI is .85.

Automatic Thought Questionnaire (ANQ). 8-item ATQ (Hollon & Kendall, 1980) was used in the current study to assess the frequency of negative thoughts. The respondents were required to rate the Likert scale ranging from 1 (*not at all*) to 5 (*all the time*). A sample item of this scale includes *"I'm no good."* The higher score of overall ATQ indicates a higher frequency of negative thoughts. In the current study, the α coefficient for USEI is .91.

Results

Table 1 below shows the topic-specific characteristics of the present study.

Table 1: Characteristics of Academic Hardiness, Academic Locus of Control, Automatic Negative Thought, Tolerance of Ambiguity, and Student's Engagement.

	M	*SD*	Min	Max	Skewness	Kurtosis
Academic Hardiness	49.31	4.37	37.00	58.00	-.147	.149
Academic Locus of Control	81.53	8.50	62.00	102.00	.017	.181
Automatic Negative Thought	17.46	5.41	8.00	34.00	1.130	1.378
Tolerance of Ambiguity	36.03	3.21	29.00	44.00	.337	.427
Student's Engagement	52.70	6.55	37.00	68.00	-.258	.757

Note. M = mean; *SD* = standard deviation; Min = minimum value; Max = maximum value; Skewness = skewness value; Kurtosis = kurtosis value.

Table 2 below shows the correlations of all the variables of the present study.

Table 2: Correlation Table of the Variables.

Variable	AHS_CON	AHS_COM	AHS_CHA
ALOC	.352**	.204*	.325**
TA	.137	.032	.097
USEI	.273*	.446**	.263*
ANT	-.386**	-.073	-.343**

Note. AHS_CON = Control Components of Academic Hardiness; AHS_COM = Commitment Components of Academic Hardiness; AHS_CHA = Challenge Components of Academic Hardiness; ALOC = Academic Locus of Control; TA = Tolerance of Ambiguity; USEI = University Students' Engagement Inventory; ANT = Automatic Negative Thoughts; * Indicates *p* <.05; ** Indicates *p* <.01.

Multiple linear regression was conducted to investigate how well academic locus of control, tolerance of ambiguity, student's engagement, and automatic negative thought predict academic hardiness. The results were statistically significant where $F_{(4,100)}$ = 18.784, *p* < .001. It was found that academic locus of control (β = 0.224, *p* = .015), student's engagement (β = 0.415, *p* < .001) and automatic negative thoughts (β = -0.184, *p* = .040) significantly predicted academic hardiness. However, tolerance of ambiguity (β = -0.018, *p* = .335) did not significantly predicted academic hardiness. The adjusted *R* squared indicates that 33.0 % of the variance in academic hardiness was explained by academic locus of control, tolerance of ambiguity, student's engagement, and automatic negative thoughts. According to Cohen (1988), the effect size of f^2= 0.49 was large. In short, student's engagement was strongest

predictor and followed by academic locus of control and automatic negative thoughts. However, tolerance of ambiguity did to predict academic hardiness. Thus, H_2 was supported.

Table 3: Result of Regression Model

	df	F	p	Adj. R^2	R^2
Regression	4	13.784	.000	.330	.355
Residual	90				
Total	94				

Note. Dependent Variable = Academic Hardiness. Predictors = Academic Locus of Control, Tolerance of Ambiguity, University Students' Engagement, and Automatic Negative Thoughts.

Table 4: Result of Regression Coefficient

	t	Std. β	Unstd. β	p
Academic Locus of Control	2.478	.224	.117	.015
Tolerance of Ambiguity	-.969	-.081	-.114	.335
University Students' Engagement	4.813	.415	.248	.000
Automatic Negative Thoughts	-2.077	-.183	-.134	.040

Note. Dependent Variable = Academic Hardiness

Discussion
The result showed that all the dimension of academic hardiness and academic locus of control had a significant and positive relationship which H_{1a}, H_{1b}, H_{1c} was consistent with other past studies (Abdollahi et al., 2020; Maddi, 1999; Schultz, 2016). These significant research findings support that people with a high internal locus of control are more likely to have a high level of academic hardiness. According to Benishek and Lopez (2001), students with a high internal locus of control believed that they have a sense of control over their academic outcomes. For instance, students will blame failure in academics on their inability to study instead of blaming the difficulty level of examination or unfair teacher. Besides, self-efficacy can be one of the explanations for the academic locus of control. Students with high self-efficacy believe in their capabilities to achieve their educational outcomes or performance through organizing and execute the action related to their goals. Bartone (2013) also stated that students with high self-efficacy have a high academic locus of control related to the control components of academic hardiness.

According to Marôco et al (2020), students with a high academic internal locus of control are more likely to have active coping strategies in academics. It helps students stay engaged with academic activities instead of using maladaptive coping strategies such as avoidance as facing academic difficulties and avoiding difficult classes. Adaptive coping styles, such as positive reframing coping style, positively predicted the vigour, dedication, and absorption in an academic setting among university students (Vizoso et al., 2018). It eventually helps university students to stay involved in educational activities while facing academic stress. Therefore, academic locus control was correlated with commitment components of academic hardiness.

Besides, existential courage produced by an internal locus of control also can explain the significant positive relationship between academic internal locus of control and challenge components of academic hardiness. According to Maddi (2004), existential courage can help individuals tolerate and deal with stressful events. Therefore, University students have the

motivation to deal with academic challenges and view the academic difficulties as an opportunity for self-development with existential courage. Hence, the present study proved that Malaysian undergraduates with a high academic internal locus of control are more likely to have academic hardiness, which helps them overcome academic difficulties such as failure and academic stress (Kamtsios and Karagiannopoulou, 2015).

The result showed that all dimensions of academic hardiness had no significant relationship with the tolerance of ambiguity which the results of the current study did not support H_{1d}, H_{1e}, and H_{1f}. Although, the result was no consensus with most of the past studies (Atamanova & Bogomaz, 2014; Eidles-Maoz, 2006; Franco et al., 2020; Rezae et al., 2009). However, a cross-sectional study discovers that hardiness will not directly be influenced by tolerance of ambiguity but indirectly influences hardiness (Kuzikova, 2019). It is also supported by a study conducted by Vindeker et al (2016), which found that tolerance of ambiguity has not a significant relationship with a high level of hardiness. In other words, students with a high tolerance of ambiguity do not have high academic hardiness regarding control, commitment, and challenge components. Kuzikova (2019) found out that tolerance of ambiguity was positively correlated with hardiness indirectly with the help of a factor which was the need for self-development. Thus, tolerance of ambiguity might be the moderator or mediator variable for the relationship between self-development and hardiness. Due to tolerance of ambiguity, it can act as an internal resource for self-development that help an individual to handle and accept the stressful situations and manage their internal emotion and think productively (Kuzikova, 2019). However, there is a lack of studies that explain the insignificant relationship of tolerance of ambiguity with academic hardiness. Therefore, it highlighted the need to investigate further the relationship between tolerance of ambiguity and academic hardiness.

The findings of the present study supported H_{1g}, H_{1h}, and H_{1i}. The findings were consistent with several past studies (Abdollahi et al., 2020; Benishek & Lopez, 2001; Cole et al., 2004; Vizoso et al., 2018). A higher level of students' engagement in an academic setting is positively correlated with a high level of academic hardiness. Apart from that, the findings found that students' engagement had the most substantial positive significant relationship with commitment components compare to control and challenge components of academic hardiness. That students' engagement could explain it is a variable with a similar theoretical construct with commitment components of academic hardiness (Benishek & Lopez, 2001). It is due to university students with high academic engagement tend to stay active and involve with educational activities even though they faced challenges or difficulties. Therefore, it is highly correlated with commitment components of academic hardiness.

Moreover, students' engagement can be studied in cognitive, emotional, and behavioural dimensions (Fredricks et al., 2014). Students with high academic engagement in cognitive engagement will lead students to have higher willingness and openness for students to learn and struggle with complex and challenging intellectual ideas and skills (Marôco et al., 2016). Thus, students with academic engagement result in correlating with challenge components of academic hardiness.

Hughes and Chen's (2011) finding can explain that students' engagement was positively correlated with control components of academic hardiness. They found that student engagement can act as a factor that increases students' academic self-efficacy, which establishes a sense of control and belief in their capabilities to impact their academic achievement and performance. It was supported by Abdollahi and Noltemeyer (2018) that

students with high student engagement indicated they were highly involved in good interpersonal relationships with their teachers. The teacher can act as one of the protective factors that promote students to believe they can positively impact their academic outcome as they faced academic challenges through praise (Pajares, 2008). Therefore, university students in Malaysia with high academic engagement will result in increased academic hardiness.

Findings from the present study revealed that automatic negative thoughts were negatively correlated with control components and challenge components of academic hardiness that supported H_{1j} and H_{1l}. University students with high automatic negative thoughts will have low academic hardiness regarding control and challenge components. Undergraduates with higher automatic negative thoughts will not believe in their capabilities to determine their educational outcomes as they faced academic difficulties. Besides, they may have low openness toward complex and comprehension courses or literary ideas, leading them to avoid the class or high attrition rate in university (Maddi et al., 2002). This result, also supported by several past studies (Jafar et al., 2016; Nowack, 1989; Zhang & Wong, 2011), supported those negative academic thoughts were negatively related to control and challenge components of academic hardiness. According to Gökalp et al (2018), automatic negative thoughts negatively influence students' sense of control which leads them low in control components of hardiness. Therefore, students with high automatic negative thoughts are more likely to find excuses for their academic failure and believed that they have no power and capabilities to manipulate their educational outcomes. Apart from that, automatic negative thoughts produced by cognitive distortions such as labelling and emotional reasoning will cause students to avoid difficult courses and use maladaptive coping skills such as avoidance to deal with the stress and academic difficulties (Strohmeier et al., 2016).

According to Jafar et al (2016), students' capabilities, for instance, taking challenges assignments, having presentations, committed in classes, and their level of self-efficacy can be strengthened by reducing their automatic negative thoughts about themselves. In short, the present findings found that automatic negative thoughts had a significant relationship with cognitive and emotional components of hardiness which are control and challenge components of hardiness.

Based on the findings in this study, academic internal locus of control can predict academic hardiness, which supported H_2 of the present study. Students who have a higher academic internal locus of control will contribute positively to academic hardiness. This finding was supported by the result and past studies (Bilibani et al., 2020; Dehghani & Kajbaf, 2013; Maddi, 2004). Students with a high academic internal locus of control will have adaptive coping strategies supported by a study conducted by Heffer and Willoughby (2017). The adaptive coping strategies such as active coping help students to cope with stress and increase their capabilities to solve academic problems will lead to high academic hardiness. On the contrary, students with a low internal locus of control will have maladaptive coping strategies, increasing their stress and self-harm behavior and leading to low academic hardiness. This finding is also consistent with Besharat's (2007) results that coping styles had reciprocal predictive relationships with hardiness. Thus, there is a predictive relationship between academic internal locus of control and academic hardiness.

Tolerance of ambiguity could not predict academic hardiness based on the present findings that failed to support H_2. Although this result was consensus with the Vindeker et al (2016) study, tolerance of ambiguity had no predictive relationship with academic hardiness.

However, the present finding was not congruent with most of the conclusions of the literature, which found that tolerance of ambiguity could predict academic hardiness (Abdellatif & Abdel-Gawad, 2020; Merino-Tejedor et al., 2015; Zhang & Sternberg, 2005). A study conducted by Abdellatif and Abdel-Gawad (2020) found that tolerance of ambiguity is one component of higher order thinking skills that positively correlated with hardiness. Higher order thinking skills can help people regulate their emotions and manage their stress with adaptive skills that positively impact hardiness. However, other components build up to higher order thinking skills, such as creative thinking, critical imagination, thoughtful risk, and cognitive flexibility. As such, tolerance of ambiguity is not sufficient to predict academic hardiness. It was also supported by a study conducted by Kuzikova (2019) that there was no direct and significant relationship between tolerance of ambiguity and academic hardiness. There might be a mediator between the relationship between tolerance of ambiguity and academic hardiness. Therefore, increasing students' tolerance of ambiguity will not contribute positively to their academic hardiness.

According to the results, university students' engagement predicts academic hardiness positively, which successfully supported H_2. Moreover, university students' engagement was found to be the best predictor. This finding was consistent with the past studies (Adollahi et al., 2020; Ayala & Manzano, 2018; Benishek & Lopez, 2001; Kuo et al., 2017), which found that students' engagement was a significant predictor of academic hardiness. This result could be explained by that a person who has a high level of academic engagement is more likely to engage and devote themselves to academics even if they face academic challenges. Students committed to academics tend to achieve a sense of belonging with school, teachers, and friends. According to Abdollahi et al (2020), students being motivated to take challenging courses, adopt adaptive coping strategies to deal with academic stress, and view academic difficulties as a chance for self-development with a sense of belongingness. Therefore, students with a high level of academic engagement are more like to contribute positively to academic hardiness.

Automatic negative thoughts predict academic hardiness negatively, which supported H_2 according to the present findings. This result was consistent with past study (Jafar et al., 2016). Automatic negative thoughts block students can explain this to deal with academic stress and academic problems rationally. Besides, Khaledian et al (2016) found that irrational belief, which was the foundation of automatic negative thoughts, were positively related to maladaptive solving skills and negatively associated with adaptive problem-solving skills. Thus, students will fail to deal with academic stress and academic problem, which might lead to disengagement with school, assignments, and interpersonal relationships with the teacher or other students, which does not positively contribute to the commitment component of academic hardiness.

Moreover, one of the maladaptive coping strategies is avoidance which will negatively contribute to challenge components of academic hardiness. Undergraduates who avoided complex courses or assignments are not open to intellectual challenges and view academic challenges as self-improvement. Lastly, automatic negative thoughts will negatively contribute to the internal locus of control (Khaledian et al., 2016). It is due to the fact the automatic negative thoughts are related to catastrophic thinking or labelling that will not cause an individual to believe that they have no control over their life. Therefore, it is negatively contributing to control components of academic hardiness. Hence, decreasing university students' automatic negative thoughts will increasing their level of academic hardiness.

Implications

The present study provides a practical framework for university students to recognise the significant factors influencing their academic hardiness. This study benefits the students by increasing their abilities to cope with academic stress, viewing academic challenges positively as opportunities for self-growth, and maintaining engagement with the university, assignments, course instructors, and peers. Apart from that, university students' mental health and well-being can be safeguarded if they are able to manage their academic stress and academic challenges effectively and positively. By doing so, the academic performance of the university students will be improving, which will be beneficial to the university and the students themselves.

Moreover, this study benefits counsellors, especially university counsellors who handle vulnerable students at risk of dropping out and experiencing high academic stress daily. First, the result showed that academic locus of control and academic engagement is vital to increase hardiness which helps to decrease the risk of dropout, burnout, and academic stress level (Kamtsios & Karagiannopoulou, 2015). Counsellors could assist university students in developing their academic locus of control and overcoming the resistance of academic engagement to increase their academic hardiness. Apart from that, this study discovered that automatic negative thoughts were negatively correlated and predicted academic hardiness. Counsellors can apply cognitive behavioural therapy to students who are low in academic hardiness. It is due to cognitive behavioural therapy aimed to assist an individual in recognising and restructuring his automatic negative thoughts. Therefore, counsellors can help those students with a high risk of drop out and a high level of academic stress by assisting them in decreasing their automatic negative thoughts to contribute positively to their academic hardiness. By doing so, university counsellors can benefit their institution or organisation by preventing the students from dropping out and increasing the students' academic attrition rate. As a result, the revenue and image of the educational institution or organisation can be maintained positively.

Limitations and Recommendations

The purposive sampling method employed in the current study may limit the generalizability of the result. Next, the use of self-reported online questionnaires is known to result in response bias.

Future research may consider adopting a longitudinal study design to institute a reasonable cause-and-effect relationship between academic hardiness and other variables (Solem, 2015). According to Maddi (2002), hardiness is not innate, which translates to the possibility of increasing hardiness through training or experiences. The need to examine the development of academic hardiness within a duration of time is warranted. In addition, automatic negative thoughts were found to predict academic hardiness negatively; other cognitive factors might have better predictive power on academic hardiness when compared to automatic negative thought. Thus, it will be beneficial to explore alternative cognitive aspects useful for counsellors in combating the high dropout rate in Malaysia.

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