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## Development, Reliability and Validity of Anxiety Level Inventory (ALI)

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### Abstract

This study was designed to build and test the validity and reliability of the Anxiety Level Inventory (ALI). The ALI questionnaire was developed to assess the level of anxiety of an individual. This inventory is un-dimensional as it is built on the symptoms of anxiety, behavioral and cognitive disorders based on the theory of General Anxiety Disorder (GAD). This Anxiety Level Inventory is easy to administer as it only takes 10 to 15 minutes. This inventory is suitable to run at the age of 15 and above, male and female gender and multicultural. This test is also appropriate to administer in groups or individually. The inventory consisted of 21 items consisting of negative and positive statements to prevent respondents from responding to the inventory arbitrarily. This Anxiety Level Inventory uses the Likert scale of Never, Sometimes and Always. The validity of ALI content was evaluated by 12 experts comprising of government and private staff, as well as guidance and counseling teachers. A total of 82 respondents answered this ALI through a 'Google doc' application consisting of UPSI students as well as guidance and counseling students. Overall validity was moderate to high of 0.617 (61.7%). The reliability value shows a high value of Cronbach alpha with .865. As such, this study produced an ALI questionnaire with good validity and reliability for use in the field of guidance and counseling in Malaysia.

**Keywords:** Anxiety Level Inventory, Content Validity, Reliability, General Anxiety Disorder (GAD), Counseling

## Introduction

Anxiety was defined as a person's made up interpretation towards an environmental stressor or burden which already had occurred, currently occurring or will be occur. Iso-Ahola and Hatfield (1986), mentioned that anxiety is a combination of physiological and psychological effect due to one's self interpretation on a situation. Gould and Krane (1992) explained anxiety as an emotional dimension or a revival for cognitive. A worrying feeling or anxiety is not an overwhelming experience in a human's life. This worrying feeling can make a human's life in anxiety, fear, strain and stressed. It can happen at any range of ages, does not matter if the person is a kid, teenager or an adult. If the person is having an anxiety, their emotional and behavioral changes can also occur. Based on the educational context, anxiety is a form of psychological disturbance towards the students and it needs the help from the teachers and school counsellors to overcome the disturbance. Kelly (1955) mentioned that human used constructive systems to predict things that will happen in their life and worries existed when we experience an event outer from our comfort zone. Conger (1985) define anxiety as an important determination to discover human's behavior. In addition, the one's existed anxiety was resulted from their painful experience, as example the pain they felt during their childhood and the anxiety feelings developed when they are in their adulthood. Meanwhile, Dollar and Miller (1950) mentioned that anxiety occurred because children tend have a lot of frustrated feelings. Anxiety behavior can affect the inner response towards their feelings, thoughts, psychological action and behavioral conflict. Freud (1997) stated that it is important to focus on their behavior instead of feelings this is because behaviors can change, but in the reality, humans can't lead themselves to feel better but they can lead themselves to do better things. With that, if a person can do good deeds, they can also build good feelings.

## Background of Anxiety Level Inventory (ALI)

Anxiety is defined as an interpretation made in the shape of stress or burden in the environment either already occur, currently occurred and will be occur. Iso-Ahola and Hatfield (1986) explained that anxiety is a combination on the psychological and physiological effect occurred due to one's interpretation towards a situation. Gould and Krane (1992) explained anxiety as an emotional dimension or a cognitive revival. Anxiety Level Inventory was built to assess a person's potential towards their anxiety level. This inventory is unidimensional because it was build based on the anxiety symptoms consist of emotions, behaviour and also cognitive. This inventory is easily to be administered because it only took 10 to 15 minutes to be completed. This inventory is suitable for those who were 15 years old and above, men and women from different races. This test can also be administered in a group setting or an individual setting. It consists of 21 items which include a negative and positive statement to avoid the respondents answered the inventory carelessly. This Anxiety Level Inventory used a Likert scale such as Never, Sometimes and Always.

## Literature Review

Anxiety is an uncomfortable feeling such as fear, worriedness and nervous. It is a usual thing occurred time by time. This feeling sometimes can make us feel prepared to face the unfavourable situation. The literature review in this research explains about the anxiety level based on theoretical basis. In a study by Mohamed and Zairazi (2007), conducted to understand the relationship between anxiety and performance as explained in the Multidimensional Anxiety Theory. The main purpose of this study was to identify the extent to which cognitive anxiety and somatic anxiety affect the performance of university male

athletes. It is expected that cognitive anxiety and somatic anxiety are related to performance. A total of 125 male athletes from one a university involved in inter-private Sports tournaments between the ages of 18-45 years old were involved in this study. Data from respondents were collected using the Competitive State Anxiety Inventory - 2 (CSAI-2) measure introduced by (Martens et al., 1990). Respondents were required to complete a questionnaire 30 minutes before the competition began. The results of the study indicate that cognitive anxiety has a significant influence on performance. While somatic anxiety does not affect performance. Through the ANOVA Test, it was found that there was no significant difference between cognitive anxiety and somatic anxiety among the university teams participating in the Sports of the Private University of Malaysia Sports Council.

Based on a study by Mokhtarinejad, Mirzaian and Hassanzadeh (2020) on comparison between schema therapy and acceptance commitment therapy (ACT) in cognitive emotion regulation components on patients with anxiety disorder. This quasi-experimental study with a pre and post-test design involves two experimental group and one control group with 15 participants in each group. The result of the study proves that both type of therapy was effective in cognitive emotion regulation among the anxiety patients with  $P < 0.001$  and it was suggested for therapist to implement the schema and acceptance commitment therapy in psychological interventions and cognitive emotion regulations with anxiety patients. A research by Tarhan, Karaman and Nalbant (2020) on examining counseling service as a pre and post study design with university students in Turkey. The finding of this study proves that psychological counselling service provides a statistically significant decrease in anxiety symptoms for the students (clients). This study was supported with a similar study by Demir and Yildirim (2017), which they have implemented eight sessions including conscious awareness, art and therapy using semi-experimental design in one group of students with anxiety. The result shows that there is a significant reduce in the student's anxiety level. With that, these studies had proven clinical counseling is important to guide and assist university students reducing their anxiety level.

### **Importance of Study**

Anxiety disturbance is a mental health disorder that caused the suffering that have an over worrying followed by feeling of fear and anxiety that influence daily life. The importance of this research is to assess the potential level of anxiety within a person. This inventory is unidimensional because it was build based on the anxiety symptoms such as emotion, behavioural and cognitive. These are the list of symptoms on the level of anxiety occurred to a person who have ALL problems:

1. Feeling anxious with parents
2. Used to experience trauma
3. Have these type of personality:
  - Shy
  - Self-isolation
  - Feeling anxious

With that, this research was built because of wanting to know the level of anxiety on one's self and identify patient's anxiety problem based on the inventory made.

### Development of Anxiety Level Inventory (ALI)

The Anxiety Level Inventory was build based on the early symptoms of anxiety disorder that a person may have. The Anxiety Level was characterized in three episodes which were Disconnection and Rejection, Impaired Autonomy and Performance and Over vigilance and Inhibition. With that, as based on the General Anxiety Disorder (GAD) theory, these three characteristics was used as the main element in the development of this inventory. This theory gives benefits to the patients who were diagnosed with mood disorders and anxiety where this scheme represents an individual emotional state including certain EMS that was activated in certain time with the right condition on scheme theory. With that, even though these two elements can be measure separately, their basis were still related to each other.

### Theoretical Basis on Anxiety Level Inventory Development

The Anxiety Level Inventory (ALI) was build based on Jeffrey Young Schema Theory for patients with chronic psychological disease and failed to get well with traditional therapy. Jeffrey Young Schema Theory was the result of Beck Cognitive Model named Cognitive Behavioral Therapy (CBT) referred on mood disturbance and anxiety. By using the Young Shema Questionnaire - Third Edition (YS3Q), there are 18 early maladaptive schemas that was founded by Young and his colleagues and it was categorize into five schema domains which are:

Schemes Domain	EMS (Early Maladaptive Schemas)	Explanation
Disconnection and Rejection	1. Neglect 2. Disbelief / Abuse 3. Emotional abuse 4. Deficiency / Shyness 5. Social Isolation / Isolate	<ul style="list-style-type: none"> <li>• Believe that other people would leave them</li> <li>• Believe that other people would lie and take an advantage</li> <li>• Feeling that the emotional support is not available</li> <li>• Believe that a person is disable and not worth anything</li> <li>• Feeling left out from others</li> </ul>
Impaired Autonomy and Performance	6. Independency / Inefficiency 7. Vulnerability for Damages / Disease 8. Alliance / Self-development 9. Fails	<ul style="list-style-type: none"> <li>• Feeling that one's could not take care of themselves</li> <li>• Believe that any disasters would occur</li> <li>• Combination of identity with others</li> <li>• Believe that someone is not enough compared to others</li> </ul>
Over vigilance and Inhibition	10. Negativity / Pessimist 11. Emotional Barrier 12. Standards/Hyper criticalness 13. Punitive	<ul style="list-style-type: none"> <li>• A broad focus on the negative aspects</li> <li>• Life</li> <li>• Emotional constrains</li> <li>• Strive for a better perfection</li> <li>• Believe that making a mistake will be punished</li> </ul>

Overall, people need to need to be aware about anxiety disorder to identify their own health condition. One of the worrying things could happen is when a person acts normally on the outside but in the reality, they are having a disease on the inside of them.

### Research Objectives

The purpose of this research:

- a. Development of ALI inventory based on literature reviews.
- b. To obtain the reliability value of the inventory based on the professional's evaluations.
- c. To obtain the reliability value on each of the subscales of the inventory based on the professional's evaluations.
- d. To determine the validity value of the inventory.
- e. To determine the validity value on each of the sub-scales of the inventory.

### Anxiety Level Inventory Administration, Scoring and Interpretation

The Anxiety Level Inventory was built to assess the anxiety disease potential towards people. This inventory has a unidimensional characteristic because it was build based on the anxiety disorder symptoms such as emotions, behaviors and cognitive. This inventory can be administered easily because it only took 10 to 15 minutes only. It is suitable for those who age from 15 years old and above, men and women and different cultures. It is also can be administered by group or individual. Respondents were free to answer any statements based on their own opinion. They were also will be advised to answer the inventory honestly and sincerely on the statement that reflects themselves. The answers need to be ticked in the answer space in the answer sheet given based on the Likert scale, Never, Sometimes and Always. The inventory consists of 21 items and use the Likert scale such as Never, Sometimes and Always. The value provided in the Likert scale is 0 for Never, 1 for Sometimes and 2 for Always. This inventory consists of 21 items include with 3 subscales (Refer to Table 1).

Table 1: Number of items in each subscale

Sub Scales	Number of Item
Emotions (disconnection and denial)	7
Behaviors (autonomy impairment and achievement)	7
Cognitive (vigilance and blocking)	7

Total score for the inventory is 42 and for each subscale is 14. The inventory score interpretation was analyzed and divided into several levels, low levels denoted by 0 until 13 marks, moderate level with 14 until 28 marks and high level with 29 until 42 marks (Referred to Table 2). Meanwhile, the sub scale score interpretation and analysis were also divided into three level which are low level by scoring from 0 to 4 marks, moderate level with 5 to 9 marks and high with 10 to 14 marks (Look on Table 3). These interpretations can lead to the respondent's evaluation on their anxiety level.

Table 2: Inventory Score Interpretation of ALI

Level	Total Score	Interpretation
High	29-42	Level of anxiety is on the highest level
Moderate	14-28	Level of anxiety is on the moderate level
Low	0-13	Level of anxiety is on the low level

Table 3: Inventory Subscale Score Interpretation of ALI

Level	Total Score	Interpretation
High	10-14	Level of anxiety is on the highest level based on the subscale factors.
Moderate	5-9	Level of anxiety is on the moderate level based on the subscale factors.
Low	0-4	Level of anxiety is on the low level based on the subscale factors.

### Research Methods

This study is a descriptive study. This descriptive study was used to get the reliability and validity value of the inventory build by the Jeffrey Young Scheme Theory. This research consists of 3 phases, which are:

#### Phase 1: Development of ALI

The ALI development was based on Jeffrey Young Scheme Theory which is the theory on General Anxiety Disorder. The reference material used was based on articles, journals and books. By referring to these, ALI was built with 21 items and divided into 3 subscales. The items then were given to the professionals for the next phase which is to obtain the reliability value of the inventory.

#### Phase 2: Content Validity of ALI

Once the ALI items were developed, the inventory will be distributed to 12 professional panels to revise and assess the inventory on the content accuracy. The professional panels were consisting of two lecturers, one school headmaster, two administrative officers, two counseling teachers, one early education teacher, three occupational therapist and a nurse. The checking will be handled by the professionals in order to obtain the validity value of the inventory. The researchers had prepared a complete copy of the inventory consist of the research introduction and ALI manual, also the appendix to get the professional's opinions and improvement. The evaluations score used is 1 (Totally Disagree) until 10 (Totally Agree).

#### Phase 3: Reliability Analysis

In this phase, ALI will be analyzed to get the reliability value. Once the value was obtained, then it will be administered to 45 respondents from age 21 up to 25 years old. The analysis of this study was completed by using the Statistical Package for the Social Sciences (SPSS) in order to obtain the Cronbach Alpha value and assess the level of reliability.

### Research Subjects

The research subjects consist of 12 professional panels that assess the validity value of the inventory and 45 respondents on the age of 21 until 25 years old from different backgrounds.

## Result

### Result Phase 1: Development of ALI

The development of ALI was handled through literature review based on the past research with appropriate model approach. The ALI was developed based on Young Scheme Theory which is YSQ3 Model Scheme based on mood disturbance and anxiousness.

### Result Phase 2: Content Validity Assessment

Table 4: Comments and Improvement on ALI items

Professionals	Opinions and Improvements
Professional 1	Change the sentence on the item number 7 in Cognitive subscale
Professional 2	Change the sentence items in the Emotions and Cognitive subscale
Professional 3	Items were suitable
Professional 4	Items were suitable
Professional 5	Items were suitable
Professional 6	Items were suitable
Professional 7	Items were suitable
Professional 8	Items were suitable
Professional 9	Change the sentence in the Emotions Subscale
Professional 10	Items were suitable
Professional 11	The items were suitable with the community backgrounds
Professional 12	Items were suitable

Based on the comment and opinions by the professionals, there are items that were suitable and there are also those that were advised to change the items. The researchers referred to the comments given by the professionals to revise the items. Overall, the professionals agreed that the items in ALI is suitable to measure the anxiety level.

Table 5: Validity value on the Total CLI and each subscale

Scales/Subscales	Number of Items	Percentage (%)	Professional Evaluations
Overall ALI	21	0.617(61.7%)	Acceptable
Subscale 1: Emotions (disconnection and denial)	7	0.583(58.3%)	Acceptable
Subscale 2: Behavior (autonomy impairment and achievement)	7	0.636(63.6%)	Acceptable
Subscale 3: Cognitive (vigilance and blocking)	7	0.630(63%)	Acceptable

Table 5 shows the ALI content validity value is 0.617 (61.7%). Every subscale on each of the content validity was 0.583 (58.3%), 0.636 (63.6%), and 0.630 (63%). There are some professional panels mentioned the items were presented in a direct sentence. As for the researchers, the direct sentences is a great feedback because it can make the respondent to understand the items easier and shorter time to answer the inventory. Overall, the ALI validity value was accepted by the panels.



**Result Phase 3: ALI Reliability Analysis**

As for the reliability analysis of ALI, the researchers had used the Statistical Package for Social Sciences (SPSS) version 23. The Cronbach Alpha reliability interpretation assessed on the overall inventory items and also each subscale. Based on Kerlinger (1979), the value of reliability that is more than 0.60 is considered least acceptable. Meanwhile for the Cronbach alpha value between 0.60 – 0.80, it is considered moderately acceptable and 0.80 is considered highly acceptable. The Cronbach Alpha value was presented in the Table 6 below.

Table 6: Overall ALI and each subscales reliability value (n=45)

Scale/Subscale	Number of Items	Percentage (%)	Interpretation
Overall ALI	21	.865	High
Subscale 1: Emotion (disconnection and denial)	7	.710	Moderately High
Subscale 2: Behavior (autonomy impairment and achievement)	7	.578	Moderate
Subscale 3: Cognitive (vigilance and blocking)	7	.766	Moderately High

*Significant level of 0.05*

Overall, the ALI reliability analysis shows a high Cronbach Alpha coefficient with a value of 0.865. This proves that ALI have a great reliability and can be used by the counsellors. Based on the ALI subscales, the result found that in Subscale 2, behaviors (autonomy impairment or achievement), the reliability value is moderate with 0.578. Meanwhile for the Subscale 1, emotion (disconnection and denial) and Subscale, cognitive (vigilance and blocking) have a moderately high value with 0.710 and 0.766.

Table 7: Reliability value on each item of ALI

Number	Items	Cronbach Alpha	Interpretation
1.	I am useless	.857	High
2.	I used to have headache	.866	High
3.	I am hard to make decisions	.866	High
4.	I used to feel overwhelm without any reasons	.860	High
5.	I have trouble with sleeping	.865	High
6.	I always in a state of stress	.855	High
7.	It is hard for me to control my sadness when I have problems	.860	High
8.	I feel hard to breath	.869	High
9.	I always have negative thoughts about myself	.855	High
10.	I have lost interest on the things I used to love	.852	High
11.	I always have muscle cramp problems	.856	High
12.	I gave up easily	.851	High
13.	I am humble in the eyes of society	.860	High
14.	I have digestion problems	.856	High
15.	I have a responsibility that is too heavy to bear	.863	High
16.	I am afraid of things that will happen	.862	High
17.	I am nervous when everyone looked at me	.866	High
18.	I think my future will be dull	.849	High
19.	I often regret with the decision I made	.849	High
20.	I tend to avoid meeting crowded people	.859	High
21.	I hate all of the things	.854	High

*Significant level of 0.05*

Table 7 shows the reliability analysis on every items of the inventory. The result of the analysis shows the reliability value is above 0.800 and considered as a high value. This analysis is same as mentioned by Kerlinger, as the Cronbach Value that is more than 0.6 gives a great reliability value and acceptable.

### Discussion and Suggestion

This research gives an impact on psychology and counselling in Malaysia. The result of the study shows a high validity and reliability value which proves that it can be use in a counseling session by a counselor. In addition, the development of instrument and research analysis on anxiety level by a counselor is still lacking in Malaysia. Therefore, ALI can be an alternative to the organization that regulates counselors to effectively evaluate the level of anxiety possessed by the clients. Furthermore, although ALI is able to measure and identify the level of anxiety in a person, it is also recommended that further studies to be conducted in order to improve this questionnaire in the future. Therefore, further testing needs to be done to produce a better-quality version of ALI and can be use includes by various parties directly or indirectly. ALI can also be the basis for a new inventory to measure a person's anxiety level

especially for those aged 15 years old and above. This is very important because with the availability of ALI inventory, a person who has the symptoms of anxiety can know their level of anxiety whether it is severe or otherwise. Researchers hope that the future studies will not only focus on the theory of General Anxiety Disorder (GAD), but also use the inventory with other related theories. Therefore, since ALI has a high reliability value for counseling practitioners, it is recommended that further studies be conducted by counselors towards the community with unlimited specific groups.

### Conclusion

In a nutshell, this research successfully build the Anxiety Level Inventory based on the Young Scheme Theory (Mood Disorder and Anxiety). Every ALI items that was developed have a high value of validity and reliability. With that, ALI has been successful in measuring the desire aspects by the researchers and can be used by the counselors, teachers and those who applicable on measuring their level of anxiety.

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