

A Study on Intolerance of Uncertainty and Text Anxiety in Medical Undergraduate Students

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ABSTRACT

Background: The COVID-19 pandemic has had a widespread impact on all aspects of life, especially on the academic life of medical students. To curb the spread of the virus, the Dr. MGR University, Tamil Nadu decided to indefinitely postpone the professional examinations scheduled for April 2021. This led to a situation of uncertainty and anxiety among students. This study aims at studying the levels of intolerance of uncertainty (IU) and test anxiety (TA) and the correlation between them among professional exam-going undergraduate medical students. The aim of the study was to assess the levels of IU among professional exam-going undergraduate medical students, to determine the levels of TA among the professional exam-going undergraduate medical students and to determine the correlation between IU and TA among professional exam-going undergraduate medical students.

Methodology: A total of 69 students participated in the study. After obtaining their informed consent, they were asked to fill the intolerance of uncertainty scale (IUS-12) and Westside test anxiety scale (WTAS) via online forms.

Results: The mean IU score was found to be 34.42. The mean TA Score was found to be 26 (high normal). There was a statistically significant, positive correlation between IU and TA ($r=0.583$, $n=69$, $p < 0.001$). There was no correlation between gender, year of study, number of hobbies or time spent on hobbies with IU or TA.

Conclusion: There is a significant correlation between IU and TA. Medical students can be made aware of multiple underlying factors which affect their mental health and subsequent academic performance.

Keywords: Intolerance of uncertainty, test anxiety, medical students, pandemic, examination

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INTRODUCTION

The impact of the COVID pandemic has been widespread, affecting people worldwide in physical, social, financial, occupational and academic domains. In March 2021, the Tamil Nadu state government declared that all educational institutions were to resume online classes, to curb the spread of COVID -19 amidst the 2nd wave of the pandemic in India. This decision affected the academic lives of medical students as The Dr MGR Medical University, Tamil Nadu decided to postpone examinations which were initially scheduled for April 2021, to conform to the changed scenario [1]. In accordance with the University stipulations, medical colleges across Tamil Nadu had to suspend examinations indefinitely until further notice. Students had created study plans, but with no clear idea about exam dates and schedules, these plans lacked the usual clarity, and failed to provide confidence and reassurance to them. They were not confident as to whether the revision schedules are enough or not, and this uncertain situation can lead to anxiety.

Medical students are confronted with many uncertain situations during the course of their medical career. The transition of medical education from the classroom to online modes poses many challenges to students, such as lack of clinical skills, reduced student engagement, and poor time management [2]. Those who

attended in-person training during lockdown also had limited exposure to patients and less time for clinical practice [3]. These rapid changes have certainly made the situation ambiguous for medical students.

According to the American Psychological Association (APA) uncertainty is the 'state or condition in which something is not accurately or precisely known' [4]. Intolerance of uncertainty (IU) is defined as 'cognitive, emotional, and behavioural reactions to uncertainty in everyday life situations' [5]. Uncertainty about the future leads to worry and anxiety, which has a negative effect on mental health. An important concept that has been researched in adolescents and university students in combination with both stress and anxiety is IU. It represents an underlying fear of what is not known [6].

Studies have shown that stress positively predicts anxiety, and that IU is a positive mediator between stress and anxiety. This means that people who are intolerant to uncertainty experience more anxiety when they face a stressful situation [7]. IU was also correlated with measures of depression and worry before treatment and academic external locus of control have been found to be inversely related to academic self-efficacy, indicating that students believe the cause of failure or success lies out of their hands and cannot be controlled by them [8]. Other studies on stress among college students have shown that uncertainty stress is the one most likely to cause mental disorders compared to other types of stress, whereby greater the uncertainty predicts higher prevalence of mental disorders [9]. Performance anxiety is defined as apprehension and fear of the consequences of being unable to perform a task or of performing it at a level that will raise expectations of even better task achievement by the APA. Test anxiety is a form of performance anxiety, which is a combination of physical symptoms and emotional reactions that interfere with the ability to perform well on tests. In academic settings, a student's academic prowess is assessed and graded through tests and exams. Self-doubt leads to performance and test anxiety.

The aim of the current study was to assess the levels of IU among professional exam-going undergraduate medical students, to determine the levels of TA among the professional exam-going undergraduate medical students and to determine the correlation between IU and TA among professional exam-going undergraduate medical students

MATERIALS AND METHODS

Study Design and Setting

The present study was a cross-sectional study. The Institutional Human Ethics Committee (IHEC) approved the study protocol (IHEC Study Proposal number: 21/205). The data was collected from July to August 2021. The sample for the present study included all second year and pre-final year undergraduate medical students studying in a private medical college in South India.

Tools

1. Intolerance of Uncertainty Scale (IUS-12) [10], is a 12-item scale for measuring intolerance of anxiety. It consists of a 2-factor scale which measures prospective anxiety and inhibitory anxiety. Each item has a scoring key ranging from 1 to 5 [1=, 'not at all characteristic of me'; 2= 'a little characteristic of me'; 3 = 'somewhat characteristic of me' 4 = 'very characteristic of me' and 5 = 'entirely characteristic of me']. The total score indicates the level of Intolerance of Anxiety (IU). This scale has been found to have good psychometric properties (reliability and validity) in Asian populations [10-12].
2. Westside Test Anxiety Scale (WTAS) [13] a 10-item scale used to screen students for test-related anxiety and cognitions that can impair performance [13-14]. Each item has a scoring key ranging from 1 to 5 (1 = 'not at all or never true', 2 = 'slightly or seldom true', 3 = 'moderately or sometimes true', 4 = 'highly or usually true' and 5 = 'extremely or always true')

Procedure

After obtaining ethics approval from IHEC, the researchers informed the participants about the purpose of the study and took written informed consent. The participants were ensured confidentiality of responses and the IUS and WTAS were distributed through online mode. The average time for tool administration was 15-20 minutes.

Statistical Analyses

R Package (v4.0.0) (2015) was used for statistical analysis. Descriptive statistics was done to determine the participant characteristics. Pearson product- moment correlation was done to determine the relationship between Intolerance of Uncertainty & Test Anxiety.

RESULTS

Participant details

A total of 69 students participated in the study. The participant characteristics are indicated in Table 1. The mean age of the participants of the sample was 21.26 (SD= 0.92).

Table 1 – Participant characteristics (N=69)

| VARIABLE | | n | % |
|-----------------------|----------------------|----|-------|
| Gender | Male | 17 | 24.64 |
| | Female | 52 | 75.36 |
| Year of study | Pre-final | 45 | 65.22 |
| | 2 nd year | 24 | 34.78 |
| Number of hobbies | None | 13 | 18.84 |
| | One | 28 | 40.58 |
| | > 1 | 28 | 40.58 |
| Accommodation | Day Scholar | 23 | 33.33 |
| | Hosteller | 46 | 66.67 |
| Type of hobbies | None | 13 | 18.84 |
| | Physical | 9 | 13.04 |
| | Literature | 6 | 8.70 |
| | Art, Music | 9 | 13.04 |
| | Others | 4 | 5.80 |
| | Multiple | 28 | 40.58 |
| Time spent on hobbies | No Hobbies | 13 | 18.84 |
| | <1 hr | 13 | 18.84 |
| | 1-3 hrs | 34 | 49.28 |
| | 3-6 hrs | 9 | 13.04 |

Intolerance of Uncertainty and Test Anxiety

The mean Intolerance of Uncertainty (IU) score was found to be 34.42. The mean Test Anxiety (TA) Score was found to be 26, indicating a high normal level of Test Anxiety. Pearsons's product moment correlation was done to determine the relation between IU and TA. There was a strong, positive correlation between

IU and TA, which was statistically significant ($r=0.583$, $n=69$, $p < 0.001$). There was no correlation between IU or TA with year of study ($p < 0.79$, < 0.43 respectively); IU, TA and gender ($p < 0.59$, < 0.53 respectively); IU, TA and number of hobbies ($p < 0.4$, < 0.19 respectively).

DISCUSSION

This study aimed to explore the levels of IU and TA, and the correlation between IU and TA among professional exam-going undergraduate medical students, in the context of the irregularity and unpredictability of the academic and examination schedule during the COVID pandemic.

IU has been established as a transdiagnostic concept which can be found in various diagnostic conditions (Obsessive-Compulsive Disorder, Social Anxiety Disorder, Panic Disorders, Health anxiety and Post-traumatic Stress Disorder) [15]. The extent to which students are able to tolerate uncertainty is an important characteristic that affects the experience of mental health problems. What people find threatening varies depending on personal, social, or cultural factors [15]. This complex situation makes medical students vulnerable to mental health difficulties and the effects of IU can become especially observable.

The present study indicated that the participants had high normal to high levels of IU and TA. Medical students are regularly confronted with uncertain situations and challenges that are characterized by a certain degree of instability. Apart from career and personal stressors, the fact that medical students are also going through a transitional period in their lives from adolescence to becoming responsible, independent young adults should also be taken into consideration.

IU has been found to affect an individual's ability to effectively cope with stressors. Dealing with environmental changes and the pressure of meeting academic demands can add to the stressors that medical students experience during the course of their education. Previous research has indicated that individuals high in IU tend to use more maladaptive coping strategies than low IU individuals which in turn increases the levels of anxiety [16-17]. This can make them more vulnerable to mental health problems and the effects of IU can become especially observable. Many of the identifiable stressors cannot be tackled immediately, but often require students to endure at least some degree of uncertainty before they can be solved.

Previous studies have found that different levels of IU are related to subjective experience of stress and anxiety. Individuals high in IU tend to rate ambiguous situations as 'stressful and upsetting' compared to low IU individuals [18]. In situations that are moderately stressful, but show explicit uncertainty, high IU individuals show increased anxiety levels and more distress than low IU individuals [18-19].

The present study also indicated a significant positive correlation between intolerance of anxiety and test anxiety. IU consists of two dimensions, namely, prospective IU (making negative cognitive appraisals to future events) and inhibitory IU (behavioural inhibition that is experienced in relation to uncertainty) [20-21]. These two dimensions can also underlie the cognitive and behavioural components of test anxiety, which can explain the relation between IU and TA seen in the present study.

Anxiety is caused by interpreting certain situations or stimuli as fear-/threat-inducing, causing significant impairment in a person's daily life and preventing them from properly managing daily responsibilities [22-23]. Worry is a significant part of anxiety and regularly reported in anxiety disorders [23]. High levels of IU interact with daily stress and significantly predicted worry [24]. Thus, IU plays a role in the process of worry and its maintenance [25]. This effect could be explained by IU impairing an individual's ability to effectively cope with stressors, and in turn fostering anxiety, again an explaining the role of IU in inducing test anxiety [16]. Studies investigating anxiety and stress among university students support this notion by reporting higher levels of anxiety and stress in females, however this was in contrast with current study findings in which there were no gender differences in experience of TA [26-28].

Contrary to expectations, an interesting finding in the current study was that there was no correlation between IU or TA with year of study, gender and number of hobbies. These findings can indicate that indefinite postponement of university exams can have a negative impact on a majority of medical students, regardless of their seniority in medical college, gender and engagement in physical activities. Considering that nearly 50% of the participants engaged in multiple physical activities and year of study, and that 63% spent more than 1 hour in the extra-curricular activities of their interest, could also indicate that these

participants had found their own measures to divert themselves and adaptively cope with the ongoing uncertainties.

The present study had certain limitations. Firstly, data was collected through online mode and based on self-report, because of which factors related to recall bias, reliability of responses and social desirability could have interfered in the present findings. The second limitation was the low response rate (23%). Though the response rate in this study was in line with previous research which indicated that online response rates in different studies ranged between 15% to 29%, this can be considered as insufficient for coming to reliable conclusions. Relevance and interest in the topic are important factors which influence online response rates [29]. Though all 2nd year and pre-final year students were encouraged to participate in the study, perhaps students who were not experiencing any negative emotions secondary to the ongoing uncertainty- may not have participated. Thus, participants with higher levels of stress might have been overrepresented in this study. The third limitation was the cross-sectional research design. Although these research designs offer benefits in terms of time-efficiency and applicability to various target- groups, they cannot assess causality between variables [30]. Hence, the relations assessed in this study can merely indicate which direction the causation goes but cannot assess which variable caused the other. Hence, further research can include a research design that can assess causality of variables, e.g. a longitudinal research design. Fourthly, the present study has not taken into account the existence of previous mental health difficulties and other ongoing stressors which could have affected the test responses.

This is the first study exploring IU and TA in Indian medical undergraduate students. Medical education and clinical practice involve unpredictability and uncertainty. Acknowledging the role of IU in relation to stress and anxiety offers valuable insight into reducing anxiety in medical students. Low levels of IU, associated with high levels of resilience, can buffer against negative effects of stress, and indirectly decrease anxiety [31-32]. These individual differences in IU may interact with stress and thus, possibly moderate the relationship with anxiety, which was confirmed in previous research whereby negative life events increased anxiety symptoms among high IU individuals, but not among low IU individuals.

Medical students need to be sensitized on the topic of IU and TA so that they can be aware of multiple underlying factors which affect their mental health and academic performance. They should also be encouraged to seek professional help in case of difficulty in dealing with stress and anxiety during exam time, as professional course students tend to experience a higher degree of stress and anxiety [14,33]. Therapy strategies for different levels of IU and TA need to be made for optimum treatment and improvement of mental health among medical students.

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