A Gender-based Rasch Analysis of University Students' Academic Stress

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ABSTRACT

Stress has become one of the issues that draw considerable attention. Although it does not cause health problems, it may affect individuals' physical and psychological health. This descriptive comparative study aimed to provide a complete depiction of university students' academic stress. It involved 466 university students (346 female, 120 male), recruited using convenience sampling technique. Data were garnered using the academic stress scale, comprising three indicators: physical, emotional, and behavioral responses. the data were analyzed using T-test, combined with RASCH stacking model. The result showed no significant difference in academic stress between female and male students. This result could be used as the basis for designing action plan to address students' academic stress.
Keywords: stress, academic stress, rasch model.

INTRODUCTION

Every individual is prone to stressful condition. They may experience stress even before they were born (Mahmud & Uyun, 2016), during childhood (Sholichatun, 2011), adolescence (Ekasari & Yuliyana, 2012; Putra & Ariana, 2016; Yahaya, Ahmad, & Zain, 2012), adult(Primaldhi, 2008; Puspitasari, 2013; Widiantini & Tafal, 2014), and when they were elders (Hidaayah, 2015; Indriana, Kristiana, Sonda, & Intanirian, 2010). Individual's stress often accumulates into psychological and even physical disorder, eventually leading to psychosomatic disorder (Barseli, Ifdil, & Nikmarijal, 2017; Hidayat, 2012; Santrock, 2007). A previous study has reported that 79.3% of hypertension patients suffer from high level of stress (Korneliani & Dida, 2012). Stress is also reported to relates to cardiovascular diseases (Braun, Foreyt, & Johnston, 2016; Roemmich, Lambiase, Balantekin, Feda, & Dorn, 2014; Roemmich et al., 2009). It has turned into an inseparable, real-life problem an individual should face every day (Sagita, Daharnis, & Syahniar, 2017).

Sarafino (2006: 62) suggests that individuals face different types of stress, which is different from one another. This difference may be accounted for by various factors, such as motivation, personality, and intelligence (Sagita et al., 2017). According to Potter Perry (2005), stress causes individuals to think and put efforts to solve problems as an adaptive response in order to survive. Stress and personality may affect one's academic development and adaptation skill (Astarini, Ah Yusuf, & Purwaningsih, 2017).

Academic stress is a type of stress that stems from academic demands and activities (Taufik, Ifdil, & Ardi, 2013). One's academic stress may be reflected by physical and mental fatigue, lower immune, and uncontrolled emotion (Rahmawati, 2017). Students who fail to cope with academic demands potentially perceive those academic demands as a disorder (Barseli et al., 2017).

Academic demands and responsibilities are among complex stressors commonly faced by,most university students. University students are required to meet various academic demands and face stressful academic conditions (Fitriana, 2013; Imamah, 2018; Suwartika, Nurdin, & Ruhmadi, 2014; Wilda, Nazriati, & Firdaus, 2016; Yuliasih & Akmal, 2019). University students are required to cope with internal and external demands (Sagita et al., 2017). During their study processes, university students should cope with internal academic stresses (Pakpahan & Fitriani, 2020), which stems from their personal aspects, and the external factors such as a dense schedule, parents expectation of achievement, and the social status in the community(Adawiyah & Ni'matuzahroh, 2016). Academic stress is closely associated with high academic demands, poor test result, non-conducive environment, study duration, unfinished assignments, major mistakes, poor time management, tight competition, test anxiety, high expectation from parents and families, learning belief and willingness. These variables are known to serve as factors leading to academic stress (Barseli et al., 2017; Fachrosi, 2012; Rahmawati, 2017; Sagita et al., 2017; Sayekti, 2017).

Academic stress stems from academic stressors(Barseli et al., 2017). It represents a condition in which individuals perceive stress related to knowledge and academic life in the university (Ernawati & Rusmawati, 2015; Govaerst & Gregoire, 2004). A previous study reports an increasing trend of students suffering from academic stress every semester (Govaerst & Gregoire, 2004). Academic stress includes one's perception of knowledge they should master and perceived time inadequacy (Barseli et al., 2017; Misra &

Castilo, 2004). From the medical perspective, stress denotes a conflicting phenomenon (mental, physical, and emotional aspect) that could threaten one's psychological well-being (Braun et al., 2016). However, some people failed to distinguish stress from depression and anxiety (Rapo & Piot-Ziegler, 2013). In the same vein, Jones, Bright, & Clow (2001) mentions two main problems related to the concept of stress: a stressful process in which individuals tend to fluctuates during the process due to any event. The second problem is related to the fact that stress is often not distinguished from other concepts such as anxiety, pressure, stressors, or even depression. Academic stress may induce depression, and in a severe level, it may stimulate suicidal intention among university students (Aries, 2016; Lubis, 2016; Nugroho, 2012).

The existing phenomena caused by academic stress has drawn our attention to delve into university students' academic stress. This study is expected to provide a clear depiction related to university students' academic stress. A clear depiction of this issue would be helpful for counselors and professional therapist in designing plans to alleviate university students' academic stress. The result of this study may serve as the initial data for other researchers to conduct more complex studies.

METHODOLOGY

This descriptive quantitative study (Creswell, 2017; Dornyei, 2007; McCusker & Gunaydin, 2015; Wisdom & Creswell, 2013; Yusuf, 2016) involved 466 students in Universitas Muhammadiyah Prof. DR HAMKA, consisting of 346 female students and 120 male students. They were recruited using the one of the non-probability sampling techniques, namely the convenience sampling technique. Data were collected using an academic stress instrument with 4-point likert scale, where 1= Always, 2 = often, 3= sometimes, 4= never. Data were analyzed using the independent sample t-test in SPSS 17.0, combined with the valid, reliable rasch model indicating that the items have a good quality. The rasch model analysis shows a

person reliability score of 0.81 and Cronbach's alpha (KR-20) of 0.83, indicating a good person-item interaction. (Sumintono & Widhiarso, 2015). The sensitive score of person's answers was +1.00 logit (INFIT MNSQ), while the overall sensitivity score of person answer was + 1.01 (OUTFIT MNSQ), which was below the ideal range. The item reliability score was 0.99, with the item sensitive score of +1.02 logit (INFIT MNSQ) (Bond & Fox, 2015; Sumintono & Widhiarso, 2015; Zaporozhets et al., 2015) and the overall item sensitivity score of +1.01, indicating a good item quality for the measurement.

RESULT AND DISCUSSION

This section presents the difference in university students' academic stress in terms of gender. The following table present the data analysis result.

Table 1.
Descriptive Statistics

Category	Frequency	Percentage
High	1	0.2%
Moderate	93	20%
Low	248	60.9%
Very Low	88	18.9%

As shown in Table 1, academic stress among female students in Universitas Muhammadiyah Prof. DR. HAMKA showed a mean score of 34.15 (SD= 7.168), while that of male students was 33.69 (SD= 7.968). The following table displays the result of the independent sample t-test.

Table 2.
Students' Academic Stress in Terms of Gender

Value	Levene Test		t-Test
Academic Stress	F(2.793)	Sig. 095	Sig.(2-tailed) .558

As displayed in Table 2, the sig. value of levene test for equality of variances was 0.956 (> 0.05), meaning that variance of data between male and female students was homogeneous. Meanwhile the discrimination

test result showed a sig.2 (2-tailed) value of 0.558 (> 0.05), indicating no significant difference between male and female students when it comes to academic stress. This finding supports (Taufik et al., 2013), who report no significant difference in academic stress between male and female participants. Similarly, another study also report no difference in academic stress between male and female students in the nursing department in Faculty of Medicine, Universitas Tribhuwana Tunggadewi Malang (Hafifah, Widiani, & Rahayu, 2017).

Table 3.
Academic Stress: Score Range

Variable	N	Mean	Std. Deviation	Std. Error Mean
Female	346	34.15	7,168	.385
Male	120	33.69	7,968	.727

As shown in Table 3, 0.2% of students exhibited a high academic stress, while 20% of them was in moderate level, 60.9% of them in low level, and 18.9% of them exhibited very low stress level. In other words, most students in this study reported a low level of academic stress (60.9%). Female and male students tended to exhibit similar stress and emotional control. The next section describes difference in academic stress in terms of sub variables.

Table 4.
Difference in Academic Stress: Subvariable Analysis

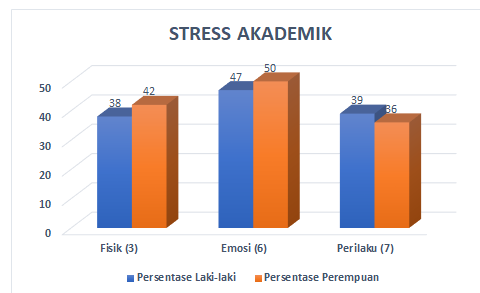| Sub variable	Male students' score			Female students' score		
	Mean	%	Desc.	Mean	%	Desc.
Physical (3)	5.65	38	Low	6.25	42	Low
Emotional (6)	14.23	47	Low	15.24	50	Low
Behavioral (7)	13.82	39	Low	12.66	36	Low
Total	33.69	42	Low	34.15	43	Low

Figure 1. *Academic Stress*.

The data above indicate that male and female students exhibited a low academic stress level. It implies that they have a good emotional management. With regard to physical aspect, female students exhibited higher score than male students. It could be interpreted that male students tend to be calmer when encountering learning difficulties and challenges. In contrast, female students tend to perceive greater stress when facing abundant tasks, such as increased heartbeat, breathing difficulty, increased muscle tension, fatigue, headache (Bariyyah & Latifah, 2015), excessive sweating during test, and anxiety(Agolla & Ongori, 2009) among other symptoms. This finding is in contrast with a study in Buffalo university (in Hafifah et al., 2017), which stated that women could better control their stress.

In terms of emotion, male students in this study tend to have lower academic stress than female students. Male and female students are anatomically, chemically, hormonally, and psychologically different, and these differences are believed to account for their difference in thinking, feeling, and behaving, including responding to problems and challenges they face (Hafifah et al., 2017). Female students tend to perceive higher stress when the examination day is closer, during which they became more emotional and sensitive due to test-related anxiety. Excessive anxiety may induce cynicism, rigidity, sarcasm, and irritability(Bariyyah & Latifah, 2015), in addition to fear of failing the test, which eventually causes suboptimal test result.

From the behavioral aspect, male students implied higher academic stress level than female students. Students suffering from academic stress tend to go back and forth to the restroom (Agolla & Ongori, 2009) to alleviate their anxiety and to recall the materials. Male students tend to be more careless when doing a test. They were often seen to be alone and daydream, and tended to blame conditions and other people when they failed the test. Some students prefer to runaway from their problems (Hafifah et al., 2017), and male students are more prone to stress and conflict (Agolla & Ongori, 2009),

whereas women tend to be open when expressing their emotions through behaviors. Academic stress emerges when expectation and demands are higher, whether from parents, teachers, or friends, and failure to meet such expectations and demands potentially lead to stress (Bariyyah & Latifah, 2015). Stress may heavily depend on one's readiness and ability to cope with challenges and problems (Shahmohammadi, 2011). In the same vein,Liu and Lu (2011) report that students suffering from academic stress tend to exhibit lower achievement, find it difficult to adjust themselves to the school environment, and cannot focus on the assignment and the learning process.

CONCLUSION

This study identifies academic stress among students in UHAMKA in terms of gender. The result indicates no difference in academic stress between male and female students. More importantly, students' academic stress score indicated that they perceived low level of academic stress. Therefore, guidance and counseling services for university students are necessary to alleviate their academic stress.

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