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Research

Would It Be The Same? Measuring Mental Health Status in Conventional Vs. Digital Way

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Abstract

Adolescents are facing challenges which puts them in risks of having emotional problems. Early detection of those who are at risk developing mental health problem is required to prevent them from worsening and thus need advanced and costly clinical treatments. However, students have limited access to mental health services due to lack of knowledge of mental health. Social stigmatization has also been a barrier to access the services. Numbers of mental health digital application has been developed. There are controversies whether digital application measures one's mental health status. The study compared scores of depression, anxiety, and stress subscales of DASS-42 (Depression, Anxiety, and Stress Scale 42 items) obtained by paper-and-pencil (conventional) questionnaire and by GALAW V.2 android-based application. It is hypothesized that insignificant scores differences between the modes of measurement demonstrated that the digital application could replace the conventional questionnaire. Thirty high school students (N=30) participated in the study. The conventional measurement (paper-and-pencil questionnaire) was conducted first. After 60 minutes break, the students completed the measurement provided digitally in the application. It showed that the mean of anxiety subscale did not significantly differ (t=1.22; p=.23) whether using digital or conventional mode. On the other hand, the paired t-test demonstrated significant mean differences in the depression (t=3.63, p=.00) and stress (t=2.32, p=.03) subscales of DASS-42. Finally, the result of the study cannot be generalized due to the small number of participants. It is advised to have more participants to represent the population. Other measurements such as the Beck Depression Inventory (BDI) and The State-Trait Anxiety Inventory (STAI) were highly recommended for validity purpose

Keywords: *depression, anxiety, stress, mental health, digital*

INTRODUCTION

Adolescence is a period that is not easily undergone by some people. As a transition between childhood and adulthood, adolescents need to adapt to new situations and responsibilities. Eventhough some of them can undergo this period fairly well, others had difficulty adapting to the expectations and demands of their surrounding. Hormonal changes that affect body shape and sexual interest make adolescents more sensitive to their self-image and to the judgments of others on them. This condition makes adolescents vulnerable to stress affecting their mental health.

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The 2018 Riset Kesehatan Dasar (Riskesdas or Basic Health Research) showed that 10% of Indonesian adolescents in the 15-24 years of age group were reported having emotional mental problems. DKI Jakarta as the capital city recorded a higher prevalence of mental emotional disorders in the age group (11.26%) than the national figure (LPB, 2019). Emotional problems such as anxiety and stress in this age group increased from 6% in 2013 to 9.8% in 2018.

The COVID-19 pandemic is also suspected of increasing emotional problems in adolescents who are forced to study from home without being able to have face-to-face interaction with their peers. Pertiwi et al (2021) found that 58.7% of 647 participants aged 14-18 years are reported having anxiety, 31.15% are reported having depression and 34.7% are reported experiencing stress during a pandemic.

Although the prevalence of emotional problems in adolescents continues to increase, their access to psychological services is still very limited. Most of psychological services are provided by the private sector, which its cost might not be affordable by adolescents (see also Randez et al, 2021). The Ministry of Health (Kemenkes RI) recorded that there are only 83 clinical psychologists in charge of serving 4262 units of Health Care Facilities (Fasyankes) in DKI Jakarta, a city with densed population of 10.56 million people (BPS DKI Jakarta, 2021).

The COVID-19 pandemic that limit face-to-face meetings prompted the development of online applications that provide education and psychological services which can be accessed by anyone with a device and internet connection. Adolescents who are increasingly accustomed to using devices for distance learning during pandemics have the opportunity to access online counseling and psychological services at all times.

Sweeney et al (2016) found that although adolescents perceive online psychology services as a positive thing, only a third of them intend to use the online service. According to Sweeney et al (2016) this is caused by lack of knowledge on mental health, a negative stigma about those who seek and use psychological services (see also Radez et al, 2021), and also the lack of adolescent knowledge about psychological services itself. However, they choose online services when they are offered at school (Sweeney et al, 2016).

Siceloff et al (2017) stated that it is important to conduct mental health screening in elementary to high school students to be able to detect emotional problems of students so that they can immediately intervene or assist if needed. Siceloff et al (2017) argued that online screening can reach more students in a shorter time. Early detection and intervention of emotional problems can prevent the development of problems into emotional or psychiatric disorders that require more complex interventions and require no small cost. This study conducted a comparison of adolescent mental health status screening conducted online through the GALAW V.2 and offline applications. If the results of the comparison between these two modes of screening are not significant, then online screening may be considered for regular use in schools (e.g. every new school year begins) to help the counseling Teacher monitor the mental health of his students and immediately provide assistance for students who are detected as having emotional and behavioral problems.

RESEARCH METHOD

The Thirty (30) 11th graders (19 girls and 11 boys aged 15.8-19.3 years, M = 16.9 years) of a Vocational High School in Jakarta participated in the study. The students were given 40 minutes of mental health education and then asked to fill out a DASS-42 pencil-and-paper questionnaire. Filling out the questionnaire takes about 10 minutes. After the questionnaire was completed,

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students were given 30 minutes break. After the break, students came back in the classroom and the research assistant asked students to install the GALAW v.2 app on their respective devices. GALAW application is only available for devices that use the android operating system. Once the app is installed, the assistant guides the students to open the app and explain the facilities available, namely education about stress, anxiety and depression. The students were accompanied to open a tab to measure their psychological condition at the time by filling out a DASS-42 survey displayed in the screen.

DASS-42 is a self-report developed by Lovibond and Lovibond (1995) to measure the negative emotional states of depression, anxiety and stress. Dass-42 has 42 aitems and consists of three subscales (depression, anxiety and stress) of which each have 14 aitems with a 4-point Likert Scale (0=doesn't suit me at all, or never gets to 3=very suits me, or very often). DASS-42 has been translated into many languages, including Indonesian. A study conducted by Damanik (2006) on 144 participants in Jakarta and Yogyakarta showed a high coefficient of reliability in the DASS-42 subscale with a range of α =.85 (anxiety) to α =.91 for depression subscales. The translation of DASS-42 in Malay (Abdin et al, 2008) also shows a relatively good coefficient of reliability, namely α =.85 (subscale for anxiety and stress) and α =.81 (subscale stress).

The reliability test of each dass-42 subscale is carried out twice according to the mode used: conventional and digital. Digital Stress subscale coefficients α =.85 and conventional α =.79. The reliability coefficient of the anxiety subscale given conventional is α =.80 and digital α =.74. The digital depression subscale has a reliability coefficient of α =.84 similar to conventional' coefficient α =.84.

RESULTS AND DISCUSSION

A paired t-test is performed to test the difference in the average value of each subscale between conventional and digital measurement. Table 1 shows that only the average values of the Anxiety subscale are not significant *($t_{anxiety}$*=1.22, *df*=23; *p*=.23). The depression and the stress subscales differ significantly between modes *($t_{depression}$*=3.63, *p*=.00). Similarly, the stress subscale (t_{stress}=2.32, *p*=.03).

Table 1. Paired t-test on each subscale between two modes (digital vs. conventional)

Subscales	*digital*		*conventional*		*t*	*df*	*sig*
	M	*SD*	*M*	*SD*			
Depression	8.83	5.34	6.33	4.77	3.63	29	.00*
Anxiety	11.57	5.32	10.73	4.57	1.22		.23
Stres	17.1	5.53	14.7	6.40	2.32		.03*

**p < .01*

The Depression and Stress subscales of DASS demonstrated that digital measurement had a higher mean score than conventional measuremen. These results showed inconsistencies in intermodal scores. Lovibond and Lovibond (1995) stated that DASS are used to measure emotional state. Chaplin et al (1988) explained that the state is something that is temporary and depends on external conditions and situations. Digital DASS measurement was conducted sixty (60) minutes

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after the conventional paper-and-pencil measurement may cause fatigue in participants. For re-reliability, measurements should be repeated in the same mode (digital) on separate days to minimize the effects of fatigue participants. However the emotional state might differ as it was taken in different situation. DASS-42 measurements need to be tested for validity with equivalent measuring instruments, such as the Beck Depression Inventory (Beck et al. 1988) to validate the Depression subscale on the DASS-42. The Anxiety Subscale tested its validity with the State Trait Anxiety Inventory (STAI, Spielberger, 1983). The results of reliability tests that are classified both in online and offline modes show that DASS-42 is a measuring tool that is a filter for students' mental health conditions so that they can get immediate intervention.

CONCLUSION

The growing prevalence of emotional problems in adolescents needs to be addressed immediately by all parties. The earlier these emotional problems can be detected and intervened, the more likely the risk of psychiatric disorders requiring more intensive and extensive intervention can be suppressed. Educational institutions where students interact with peers as well as with teachers in lieu of parental figures need to develop their institutions as holistic health settings that include physical and psychological health in addition to academic settings so as to increase students' knowledge and also teachers about mental health in adolescence. This certainly cannot be developed alone but needs to work with various parties including partnering with universities.

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