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Citation

Kotera, Y. & Ting, S.H. (2019). Positive Psychology of Malaysian Students: Impacts of Engagement, Motivation, Self-Compassion and Wellbeing on Mental Health. *International Journal of Mental Health and Addiction*.

### **Abstract**

Malaysia plays a key role in education of the Asia Pacific, expanding its scholarly output rapidly. However, mental health of Malaysian students is challenging, and their help-seeking is low because of stigma. This study explored the relationships between mental health and positive psychological constructs (academic engagement, motivation, self-compassion, and wellbeing), and evaluated the relative contribution of each positive psychological construct to mental health in Malaysian students. An opportunity sample of 153 students completed the measures regarding these constructs. Correlation, regression, and mediation analyses were conducted. Engagement, amotivation, self-compassion, and wellbeing were associated with, and predicted large variance in mental health. Self-compassion was the strongest independent predictor of mental health among all the positive psychological constructs. Findings can imply the strong links between mental health and positive psychology, especially self-compassion. Moreover, intervention studies to examine the effects of self-compassion training on mental health of Malaysian students appear to be warranted.

*Keywords: Malaysian students, positive psychology, mental health, self-compassion, academic engagement*

## Introduction

### *Problematic Mental Health in Malaysian Higher Education*

Malaysian higher education plays a key role in the rapidly developing region of Asia Pacific (Knight & Sirat, 2011; Lee, 2014), supported by more than 35,000 academic faculties (Wan, Morshidi & Dzulkifli, 2015). With the recent restructuring initiated by the ‘Malaysian Education Blueprint 2015-2025’ scheme (Ministry of Higher Education, 2012), research output of Malaysian universities has been expeditiously growing: between 2012 and 2016, Malaysia increased its scholarly output by 7.2% - one of the highest growth rates of all the researched countries (e.g., 4.6% in Australia, 4.2% in China, 3.6% Singapore; Elsevier, 2018). Despite its successful academic achievement, Malaysian students suffer from poor mental health (Mey & Yin, 2015; Ministry of Health, 2016). The primary causes for their poor mental health are financial stress resulted from heightened tuition fees, academic pressure from increased workload, and general life stress associated with family matters (Gani, 2017). To address mental health challenges, Malaysian government implemented the National Strategic Mental Health Action Plan, increasing access to mental health support and awareness (Ministry of Health, 2016), however its definite effects are yet to be seen. During these years of thriving academic development, the number of Malaysian students suffering from mental illness doubled from 10% to 20% (Bin Hezmi, 2018). One cause for the increased mental illness was stigma around mental health issues (Ministry of Health, 2016). Indeed, more than a third of Malaysians who suffered from mental health problems did not ask for help (Chong, Mohamad & Er, 2013). Stigma and negative mental health attitudes are associated with, and predictors of poor mental health (Kotera, Adhikari & Van Gordon, 2018a; Kotera, Conway & Van Gordon, 2018b; Kotera, Gilbert, Asano, Ishimura & Sheffield, 2018d; Kotera, Green & Sheffield, 2018e; Kotera, Green & Van Gordon, 2018f). For students who perceive mental health negatively, directly approaching mental health

would not be effective, as they feel shame about engaging in such interventions (Kotera et al., 2018b, 2018e, 2018f). Instead, augmenting positive psychological constructs was suggested as an alternative approach to reduce mental health problems in UK student populations (Kotera et al., 2018b, 2018e, 2018f). However, to date these relationships have not been explored in Malaysian students in depth. Accordingly, this study aimed to explore positive psychological constructs, in relation to mental health of Malaysian students.

### ***Positive Psychology for Mental Health***

Since its development, high utility of positive psychology - the term coined by Abraham Maslow during 50s (Maslow, 1954), studying happiness and wellbeing (Seligman & Csikszentmihalyi, 2000) - has been consistently reported. While traditional psychology focuses on pathologies to be removed, positive psychology attends to one's strengths and values to be nurtured (Seligman & Csikszentmihalyi, 2000). Though still nascent (Kim, Doiron, Warren & Donaldson, 2018), positive psychology has been introduced in Malaysian higher education, and the importance of potentiating their wellbeing has been recommended (Aziz, Mustaffa, Samah & Yusof, 2014). Positive psychological approaches, targeting flourishing mental health (i.e., high levels of mental wellbeing; Hone, Jarden, Schofield & Duncan, 2014), are cost-effective prevention from mental health problems (Forsman et al., 2015; Kobau et al., 2011). Longitudinal studies noted the impacts of positive psychology on reduction of mood disorders. A ten-year observation of positive psychology and mental illness among American adults identified a relationship between an increase in positive psychological constructs and a decrease in mental illness (Keyes, Dhingra & Simoes, 2010). In a Dutch three-year study, flourishing mental health was predictor of large variance (28-53%) of mood disorders (Schotanus-Dijkstra, ten Have, Lamers, de Graaf & Bohlmeijer, 2017). Intervention studies followed these findings. A randomized controlled trial (RCT) examining the effects of acceptance and commitment therapy noted that an increase in

positive psychology outcomes concurred with a decrease in depression (Bohlmeijer, Lamers & Fledderus, 2015). A web-based positive psychology intervention, targeting positive emotions, engagement and meaning, enhanced pregnant women's wellbeing and reduced depression (Corno et al., 2018). Further, eight-week positive psychology training, focused on engagement and motivation, reduced PhD students' mental distress (Marais, Shankland, Haag, Fiault & Juniper, 2018). Among Malaysian students, the 'three good things' exercise, where students recorded three good things that happened to them on each day over two weeks, improved their wellbeing and reduced their mental distress (Noor, Abdul Rahman & Mohamad Zahari, 2018). Though some reported these associations were moderate (Weich et al., 2011), significant linkages between positive psychology constructs and mental health have been reported.

### ***Engagement, Motivation, Self-Compassion and Wellbeing***

One positive psychological construct that is particularly important in higher education is academic engagement (hereafter 'engagement') because of its positive relationships with diverse student outcomes: their mental health (Liébana-Presa et al., 2014; Rogers et al., 2017), attainment (Casuso-Holgado et al., 2013; Neel & Fuligni, 2013), and intrinsic motivation (Armbruster, Patel, Johnson & Weiss, 2009; Bicket, Misra, Wright & Shochet, 2010). Academic engagement relates to how much students are willing to make an effort in their academic work (e.g., knowledge and skill acquisition) (Newman et al., 1992).

Unsurprisingly, student engagement was associated with mental health and resilience (a strong protective factor of mental health; Trompetter, de Kleine & Bohlmeijer, 2017) among 410 students in Australia, one of the neighboring countries of Malaysia (Turner, Scott-Young & Holdsworth, 2017). The relationships between academic engagement and student mental health have been found in other countries as well (Datu, 2018; Suárez-Colorado, Caballero-

Domínguez, Palacio-Sañudo & Abello-Llanos, 2019). However, these engagement relationships have not been explored in Malaysian students.

Mental health is also related to intrinsic motivation - a key correlate of engagement (Baard, Deci & Ryan, 2004; Bailey & Phillips, 2016; Locke & Latham, 2004). Intrinsic motivation is a type of motivation that contrasts with extrinsic motivation in the self-determination theory (SDT), one of the most established motivation theories (Deci & Ryan, 1985). SDT holds that each individual has an inherent tendency to express their psychological energy into self-actualization and social adjustment (Deci & Ryan, 1985). Intrinsic motivation can be expressed in activities that are inherently interesting and fulfilling (i.e., undertaking the activity itself is a reward), on the other hand, extrinsic motivation can be observed in activities that are means to an end, such as money and status. Intrinsic motivation is associated with positive outcomes such as better performance (Baard et al., 2004), wellbeing (Bailey & Phillips, 2016), life satisfaction (Locke & Latham, 2004), prosocial behavior (Gagne, 2003), and ethical judgement (Kotera et al., 2018c). Contrariwise, extrinsic motivation is associated with negative outcomes such as burnout (Houkes, Janssen, de Jonge & Bakker, 2003), shame (Kotera et al., 2018a), depression (Blais, Brière, Lachance, Riddle & Vallerand, 1993), limited performance (Vallerand, 1997), and unethical judgment (Kotera et al., 2018c). In higher education particular, students' intrinsic motivation was related to academic performance (Khalaila, 2015) and meaningfulness (Utvær, 2014). However these relationships of intrinsic motivation have not been thoroughly investigated in Malaysian students.

Self-compassion has been receiving increasing attention in mental health research for its association with mental health (Ehret, Joormann & Berking, 2015; Kotera et al., 2018b, 2018d, 2018e, 2018f; Muris, Meesters, Pierik & de Kock, 2016). Self-compassion - being kind and understanding to one's weaknesses and inadequacies (Gilbert, 2010) - ameliorates

mental distress by cultivating resilience (Trompetter et al., 2017). Self-compassion is strongly associated with better mental health (Ehret et al., 2015; Hayter & Dorstyn, 2014; Muris et al., 2016), and also a key predictor of good mental health in UK students (Kotera et al., 2018f).

Lastly, mental wellbeing (hereafter 'wellbeing') is central in positive psychology (Slade, 2010). A shift from treating mental illness to promoting mental wellbeing has been implemented at the policy level in mental health-aware countries such as Canada (Mental Health Commission of Canada, 2009) and the UK (Department of Health, 2009), because of the high relevance between those two constructs. A two-year longitudinal study investigated the Malaysian students undergoing the recent educational restructure also reported the concomitant changes of mental health and wellbeing (Mey & Yin, 2015).

Although these findings highlighted strong relationships between mental health and positive psychological constructs, no study to date has explored the relationships between mental health and positive psychology comprehensively. Further, how strongly each positive psychological construct is related to mental health has not been investigated in depth. Accordingly, this study aimed to explore these relationships, and elucidate the relative contribution of each positive psychological construct to mental health in Malaysian students.

## **Methods**

### ***Participants***

Participants had to be 18 years old or older, and a student of a Malaysian university. An opportunity sampling of 160 undergraduate students majoring in humanities subjects were approached by tutors' announcements in their classes, and 153 (121 females, 31 males, 1 unanswered;  $RNG_{age}=18-27$ ,  $M_{age}=21.24$ ,  $SD_{age}=1.59$  years) completed the scales regarding mental health, engagement, motivation, self-compassion, and wellbeing. Students taking a study break at the time of the study were excluded from the study. Majority of them were Malaysian (143 Malaysians, eight Bangladeshis, and one unanswered). No participation



incentive was offered. All the participated students filled out the participation consent prior to responding to the scales. This study was conducted along with another study that explored mental health attitudes and shame about mental health problems in the same cohort of students. The findings from the other study are reported elsewhere.

### ***Materials***

The Depression, Anxiety and Stress Scale (DASS-21) was used to evaluate their *mental health*. This 21-item scale is a short form of DASS-42 (Lovibond & Lovibond, 1995) classifying mental health problems into depression, anxiety, and stress (seven items each) on a four-point Likert scale ('0' being 'Did not apply to me at all' to '3' being 'Applied to me very much or most of the time'). Items include 'I felt that I had nothing to look forward to' for depression, 'I felt I was close to panic' for anxiety, and 'I found it difficult to relax' for stress. DASS-21 had high internal consistency ( $\alpha=.87-.94$ ; Antony, Bieling, Cox, Enns, & Swinson, 1998). For the purpose of this study, the global DASS-21 score was calculated to appraise the level of overall mental health (Antony et al., 1998).

*Engagement* was assessed using the Utrecht Work Engagement Scale for Students (UWES-S), a 17-item scale appraising the degree students feel active and confident towards their academic activities (Schaufeli & Bakker, 2004). The three subscales of UWES-S corresponds to vigor (six items including 'I feel strong and vigorous when I'm studying or going to class'), dedication (five items including 'I find my studies full of meaning and purpose'), and absorption (six items including 'Time flies when I am studying'), rated on a seven-point Likert scale ('0' being 'Never' to '6' being 'Always (everyday)'). Vigor pertains to energy that leads to a great amount of effort in one's studies determinedly; dedication considers one's commitment to academic work; and absorption relates to positive immersion in one's academic work (Schaufeli, Salanova, Gonzalez-Roma & Bakker, 2002). UWES-S

had high internal consistency ( $\alpha=.63-.81$ ; Schaufeli & Bakker, 2004). In this study, the average of the total score for the engagement measure was used (Schaufeli & Bakker, 2004).

*Motivation* was examined using the Academic Motivation Scale (AMS; Vallerand et al. 1992), consisting of 28 items considering three types of motivation categorized into seven subtypes: (i) amotivation, (ii) extrinsic motivation (external, introjected, and identified regulation), and (iii) intrinsic motivation (to know, to accomplish, and to experience stimulation). Students are asked why they go to university, and respond to items (e.g., 'I don't know; I can't understand what I am doing in school' for amotivation, 'In order to have a better salary later on' for extrinsic motivation, and 'Because I experience pleasure and satisfaction while learning new things' for intrinsic motivation), which are responded on a seven-point Likert scale ('1' being 'Does not correspond at all' to '7' being 'Corresponds exactly'). AMS demonstrated adequate to high internal consistency ( $\alpha=.62-.91$ ; Vallerand et al., 1992).

For *self-compassion*, Self-Compassion Scale-Short Form (SCS-SF; Raes, Pommier, Neff & Van Gucht, 2011), a shortened version of the Self-Compassion Scale (Neff, 2003) was employed. This 12-item five-point Likert scale ('1' being 'Almost never' to '5' being 'Almost always') includes 'When something painful happens I try to take a balanced view of the situation', and the scores on the negative items (1, 4, 8, 9, 11, and 12) are reversed. Internal consistency of SCS-SF was high ( $\alpha=.86$ ; Raes et al., 2011).

Lastly, *wellbeing* was measured using the Short Warwick–Edinburgh Mental Wellbeing Scale (SWEMWBS; Stewart-Brown et al., 2009), a seven-item scale, shortened from the original 14-item version (Stewart-Brown & Janmohamed, 2008). Items are positively worded (e.g., 'I've been thinking clearly'), responded on a five-point Likert scale

(‘1’ being ‘None of the time’ to ‘5’ being ‘All of the time’). SWEMWBS had high internal consistency ( $\alpha=.85$ ; Stewart-Brown et al., 2009).

### ***Procedure***

Collected data were screened for outliers and the assumptions for parametric tests. First, correlation analyses were performed to explore the relationships between mental health, engagement, motivation, self-compassion, and wellbeing of Malaysian students. Second, multiple regression analyses were conducted to evaluate how much each variable could explain the variance in mental health. Lastly, mediation analysis was performed to examine whether the strongest predictor was mediated by another variable. The correlation and regression analyses were conducted using IBM SPSS 25. Process macro 3 (Hayes, 2017) was used for mediation analysis, with 5,000 bootstrapping re-samples and bias-corrected 95% confidence intervals (CIs) for indirect effects.

## **Results**

### ***Relationships Between Mental Health, Engagement, Motivation, Self-Compassion, and Wellbeing***

No outlier was identified, using the outlier labelling rule (Hoaglin & Iglewicz, 1987). Because mental health, extrinsic motivation, amotivation, and wellbeing were not normally distributed (Shapiro-Wilk,  $p<.05$ ), all the sub/scales were square-root transformed. Pearson’s correlation was calculated to explore the relationships between mental health, engagement, motivation, self-compassion, and wellbeing (Table 1).

Table 1. Descriptive statistics and correlations between mental health, engagement, motivation, self-compassion, and wellbeing in Malaysian students (n=153).

Sub/scale (Range)	M±SD	1	2	3	4	5	6	7	8	9
1 GN (1=M, 2=F) M:31, F:121, NoAnswer:1		-								
2 Age (18-27)	21.24±1.59	-.12	-							
3 Mental Health (0-126)	51.45±25.44	.08	.01	-						
4 Engagement (0-6)	3.65±.97	.04	-.12	-.22**	-					
5 Intrinsic Motivation (4-28)	20.08±3.76	.10	.02	-.05	.37**	-				
6 Extrinsic Motivation (4-28)	21.71±3.88	.18*	-.01	.08	.21*	.76**	-			
7 Amotivation (4-28)	12.25±5.82	-.24**	.06	.40**	-.37**	-.30**	-.24**	-		
8 Self-Compassion (1-5)	3.12±.54	-.18*	.12	-.60**	.33**	.05	-.13	-.28**	-	
9 Wellbeing (7-35)	20.80±3.75	-.26**	.08	-.49**	.39**	.29**	.11	-.13	.52**	-
*p<.05, **p<.01										

Mental health was associated with engagement ( $r(151) = -.22, p = .008$ ), amotivation ( $r(151) = .40, p < .001$ ), self-compassion ( $r(151) = -.60, p < .001$ ) and wellbeing ( $r(151) = -.49, p < .001$ ), while not associated with demographics (Gender  $r(151) = .08, p = .30$ ; Age  $r(151) = .01, p = .88$ ), intrinsic motivation ( $r(151) = -.05, p = .53$ ), and extrinsic motivation ( $r(151) = .08, p = .34$ ). Wellbeing was related to gender ( $r(151) = -.26, p = .001$ ), mental health ( $r(151) = -.49, p < .001$ ), engagement ( $r(151) = .39, p = .001$ ), intrinsic motivation ( $r(151) = .29, p < .001$ ), and self-compassion ( $r(151) = .52, p < .001$ ).

**Predictors of Mental Health**

Multiple regression analyses were conducted to explore the relative contribution of engagement, amotivation, self-compassion, and wellbeing (significant correlates; predictor variables) for their mental health (Table 2). Multicollinearity was of no concern (VIFs<10). Engagement, amotivation, self-compassion, and wellbeing were entered as predictor variables, and mental health was entered as an outcome variable. Age and gender were not entered, as these were not significantly related to mental health. These predictor variables

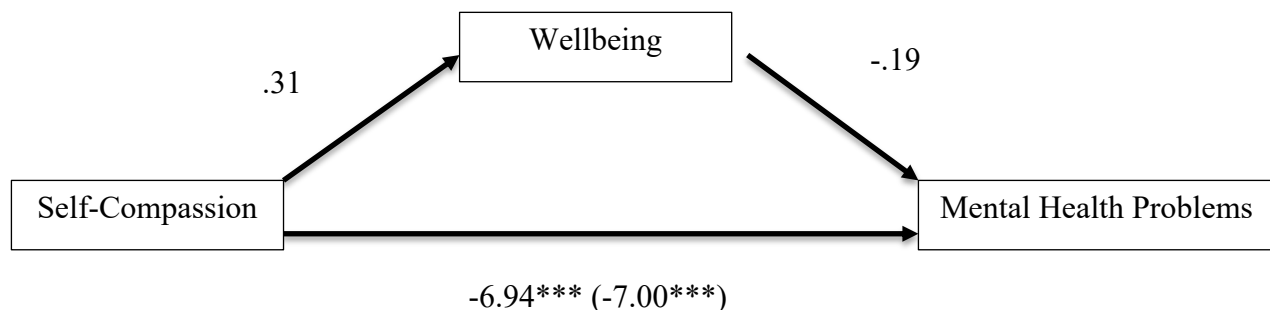
accounted for 47% for mental health, a large effect size (Cohen, 1988). Engagement and amotivation were positive predictors, whereas self-compassion and wellbeing were negative predictors for mental health. Self-compassion was the strongest predictor of mental health among all the predictor variables.

*Table 2. Multiple regression: Engagement, amotivation, self-compassion, and wellbeing for mental health problems in Malaysian students (n=153).*

	Mental Health		
	B	SE <sub>B</sub>	β
Engagement	.99	.46	<b>.15*</b>
Amotivation	.64	.14	<b>.30***</b>
Self-Compassion	-4.81	.83	<b>-.41***</b>
Wellbeing	-1.33	.33	<b>-.29***</b>
Adj. R2	.47		
B=unstandardised regression coefficient, SE <sub>B</sub> =standard error of the coefficient, β=standardised coefficient * <i>p</i> <.05, *** <i>p</i> <.001			

Further, a mediation analysis was performed to examine whether the strongest prediction of self-compassion (predictor variable) for mental health problems (outcome variable) was mediated by wellbeing (mediator variable), using model 4 in the Process macro (parallel mediation model; Hayes, 2012) (Figure 1).

Figure 1. Parallel Mediation: Self-Compassion as a Predictor of Mental Health Problems, Mediated by Wellbeing.



The confidence interval for the indirect effect is a BCa bootstrapped CI based on 5,000 samples. Direct effect (total effect). Values attached to arrows are coefficients indicating impacts. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

The total and direct effects of self-compassion on mental health problems were significant (Total  $b = -7.00$ ,  $t(151) = -9.25$ ,  $p < .001$ ; Direct  $b = -6.94$ ,  $t(150) = -9.11$ ,  $p < .001$ ), whereas the indirect effect of self-compassion on mental health problems through wellbeing was not ( $b = -.06$ , BCa CI [-.32, .12]). Wellbeing did not mediate the effect of self-compassion on mental health problems: Self-compassion independently predicted the variance in mental health problems.

### Discussion

This study explored relationships between mental health, engagement, motivation, self-compassion, and wellbeing of Malaysian university students. Their mental health was associated with engagement, amotivation, self-compassion and wellbeing. Those significant correlates of mental health predicted 47% (a large effect size) of mental health, and were all significant predictors of mental health. Self-compassion was the strongest independent predictor.

Mental health was related to all the positive psychological constructs, except for intrinsic motivation. These significant relationships were in line with previous research

(Kotera et al., 2018b; Mey & Yin, 2015; Rogers et al., 2017), and may imply the importance of positive psychology for mental health in Malaysian students. Contrary to previous findings, intrinsic motivation was not associated with mental health. This may be explained by a type of passion (i.e., intrinsic motivation) students experience towards their academic work. If they are passionate to study, because of social acceptance (e.g., parents' approval), that could create obsessive passion, which could damage their wellbeing (Vallerand et al., 2003). Because obsessive passion is derived from outside of their control, the activities that are attached to social acceptance can take exaggerated importance, harming the other areas of life (i.e., they cannot stop doing the activity). As one of the primary reasons for mental health problems in Malaysian students was family matters (Gani, 2017), some students might have had this type of passion, who could score high in intrinsic motivation but also high in mental health problems. On the other hand, harmonious passion - an autonomous internalisation of the activities into their identity - was positively associated with wellbeing and negatively associated with mental distress (Vallerand et al., 2003). Future research should explore types of passion, in relation to mental health of Malaysian students. Moreover, a consideration of cultural acceptance for intrinsic motivation may be needed. Intrinsic motivation presumes that each individual has inherent proclivity to express their psychological energy for self-actualization and social adaptation, which can be more resonated with the Western individual cultures than the Asian collective cultures. Indeed some motivation studies have been done with Asian populations (e.g., Israel; Khalaila, 2015), however a cultural fit of intrinsic motivation in highly collective cultures such as Malaysia and Indonesia has not been explored yet (Hofstede, Hofstede & Minkov, 2010). As an understanding of 'self' is different in between an individual culture and collective culture (Markus & Kitayama, 1991), how intrinsic motivation is related to mental health can be also different in these two types of

cultures. Comprehensive perceptions of these types of motivation (i.e., intrinsic, extrinsic, and amotivation) should be investigated in depth.

Engagement, amotivation, self-compassion, and wellbeing were associated with, and predictors of mental health. These four constructs predicted 47% of the variance in mental health, indicating a large effect size. Consistent with previous research, these constructs were also strongly related to mental health in Malaysian students. Considering their negative attitudes towards mental health (Chong, Mohamad & Er, 2013), this can imply great clinical usefulness: augmenting these positive psychological constructs may be more effective to reduce mental distress, than directly targeting mental health symptoms of Malaysian students (as positive psychological approaches can bypass their negative mental health attitudes). As recent health policies endorsed (e.g., in Canada; Mental Health Commission of Canada, 2009, and in the UK; Department of Health, 2009), potentiating positive psychology, while considering the cultural characteristics (Marecek & Christopher, 2017; Noda, 2012, Singh & Groll, 2015), should be also recommended in Malaysian students.

Among all the predictor variables, self-compassion was the strongest independent predictor of mental health. As reported in other student populations (Kotera et al., 2018b, 2018e, 2018f; Neely, Schallert, Mohammed, Roberts & Chen, 2009; Ying, 2009), self-compassion was also important for Malaysian students' mental health. This may suggest that providing self-compassion training to this student group may be useful, as it can result in better self-care and mental health (Dunne, Sheffield & Chilcot, 2016). One effective way to implement this type of training may be to embed it in the orientation stage, because informing students of common mental distress, and how to cope with it, in the beginning of their studies could protect them from the forthcoming academic stress (Law, 2015). Further, such information about mental health care could prevent students from delaying help-seeking, leading to better clinical outcomes (Reavley & Jorm, 2010). Additionally, this type of



sessions can benefit tutors too, as enhanced compassion was associated with better mental health in a tutor population (Jennings & Greenberg, 2009). Future research should evaluate the effects of self-compassion training on mental health of Malaysian students.

Although this study offers useful insights into student mental health in Malaysia, there are several limitations to be noted. First, students were recruited via opportunity sampling from one university, which restricts the generalisability of the study findings. Second, the scales used were self-report, which limits the accuracy of the student responses for social desirability bias (Latkin, Edwards, Davey-Rothwell & Tobin, 2017). Lastly, because it was a cross-sectional study, the causal direction of the relationships cannot be ascertained.

Longitudinal studies would be useful to identify the causality, and to develop interventions.

Although Malaysian universities successfully grew their academic impacts rapidly, mental health of Malaysian students remains challenging. This study explored the relationships between their mental health and positive psychological constructs. Academic engagement, amotivation, self-compassion, and wellbeing were associated with, and predicted 47% of variance in mental health. Intrinsic motivation was not related to mental health. Self-compassion was the strongest independent predictor of mental health among all the positive psychological constructs explored. Findings can imply the strong links between mental health and positive psychology, especially self-compassion, and a need for further research into passion. Moreover, intervention studies to examine the effects of self-compassion training on mental health of Malaysian students appear to be warranted.

Yasuhiro Kotera and Su-Hie Ting declare that they have no conflict of interest. All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (Universiti Malaysia Sarawak, Malaysia) and with the Helsinki Declaration of 1975, as revised in 2000 (5). Informed consent was obtained from all patients prior to being included in the study.

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