Mindfulness and Depression: The Mediating Role of Psychological Flexibility

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Abstract
Objective: The aim of the current study was to examine the mediating role of psychological flexibility on the relationship between mindfulness and depression. Method: The participants were 312 high-school students in Thailand. The sampling method was multistage cluster sampling. Research instruments used in this study include Psychological Flexibility Scale for Adolescents (PFSA-Thai), Center for Epidemiological Studies-Depression Scale (CES-D-Thai) and Philadelphia Mindfulness Scale (PHLMS-Thai). Data were analyzed using percentage, mean, standard deviation and path analysis. Result: The findings suggested that the relationship between mindfulness and depression was fully mediated by psychological flexibility. Conclusion: The findings support that depression can be alleviated by mindfulness through psychological flexibility. Psychologists and mental health professionals may utilize this framework to develop an intervention for depression reduction in high schools.

Keywords: Mindfulness, Depression in Adolescent, Psychological Flexibility for Adolescents, Acceptance and Commitment Therapy (ACT)

Introduction

Depression in adolescents is one of the mental health problems that is prevalent in various countries around the world and tends to increase continuously (Duangjai Vatanasin, 2016). In Thailand, it is reported that the prevalence of depression among adolescents in 2008 was of 11.5% and increased to 13.3% in 2015 (Palisara Augsusingha & Sirichai Hongsanguansri, 2015). Accordingly, as reported by the Mental Health Service Hotline 1323, in fiscal year 2018, teenagers called in to seek advice for 10,298 times, and in the first two quarters of the fiscal year 2019, the numbers of calls increased to 13,658 times—of which, depression was one of the five issues that teenagers sought advice the most. This problematic issue apparently has been rising, and it is in consistence with the increasing rate of successful suicides in adolescents aged between 20-24 years, which were 4.94% and 5.33% per 100,000 people in 2017 and 2018 respectively. (Department of Mental Health, 2019)

Depression impacts greatly on the adolescents themselves, their family, and the society they live in. The effects on themselves include insomnia, weight loss, mood swings, and lack of interest in activities (Mahon & Yarcheski, 2001, as cited in Duangjai Vatanasin, 2016) which lead to conflicts in family and personal relationships (Titawee Kaewpornsawan & Benjaporn Tuntasood, 2012; Sunun Seangsanaoh et al., 2017), more drug abuse (Elizabeth Kim et al., 2019; Anand et al., 2019), and decreased level of abilities in adaptation, concentration, learning skills, and increased problems in school (Malas et al., 2019; Joshi et al., 2019). And if the symptoms occur in their youth, there is a higher risk for them than regular people that the symptoms will reoccur in their adulthood (Shanahan et al, 2011as cited in Brent & Maalouf, 2015; Proithip Suntaphun et al., 2019). Moreover, depression causes teenagers low self-esteem, arouses self harms, and eventually leads to suicide attempts (Raj et al., 2019; Sararud Vuthiarpa, 2012; Wongdyan Pandi, 2015). As for the impact on the economy and society, for instance, the government has to allocate a large amount of budget on solutions for mental health issues (Government Fiscal Management Information System (GFMIS), 2018, as cited in Wanabuth Yuphakaset, 2019). Therefore, in order to prevent, solve, and reduce the severity of mental health issues in Thailand, it is very crucial to offer help to the teenagers who suffer depression.

After reviewing literatures, the researchers had found out that many theories concerning psychological therapy have been applied in treating adolescence depression. A lot of studies suggest that Cognitive Behavior Therapy (CBT) is an effective remedy for depression (Evans et al., 2005, as cited in Brent & Maalouf, 2015). However, over the past 30 years, the traditional CBT has been developed into new treatments, which, at present, are considered the third wave of behavioral therapy. The spiritual approaches of the East and the concepts of the West were combined and were focused on the idea of acceptance as well as applying the concept of mindfulness into the treatment called *mindfulness-based psychotherapy*. The principles that had been improved, accepted widely, and scientifically reliable are Mindfulness-Based Stress Reduction (MBSR), Mindfulness-Based Cognitive Therapy (MBCT), Acceptance and Commitment Therapy (ACT), and Dialectic Behavior Therapy (DBT).

There are many empirical evidences stating that Mindfulness-Based Therapy can be used to treat various mental health problems such as depression, bipolar disorder,

anxiety disorder, eating disorders, drug or alcohol abuse, borderline personality disorders, and other physical disorders related to mental conditions such as high or low blood pressure, chronic pain, and so forth (Daochompu Nakawiro & Sirijit Suttajit, 2013; Shapiro & Carlson, 2009). Nonetheless, scholars agree that the concept of mindfulness is very effective in depression treatment as it helps reduce residual symptoms and prevents the relapse (Shapiro & Carlson, 2009; Williams, 2008; Ramel et al., 2004; Chiesa & Serretti, 2011; Brition et al., 2010).

Although there are many studies on the effectiveness of the mindfulness concept, there are, however, quite few studies on the inner mechanism of mindfulness that affects depression and those studies described about it differently (Desrosiers et al., 2013; Long & Hayes, 2014). Moreover, up to the present, there have not been any studies on the mechanism of mindfulness that affects depression in Thai adolescents. Therefore, this limitation could result in ineffective treatments for adolescent depression. Thence, in this study, the researchers aim to determine the mechanism of mindfulness under the paradigm of ACT that was developed by Steven C. Hayes in 1990, as the ACT is the theory that has been acknowledged and adopted in treating mental pathology widely nowadays (Hayes et al., 2012; Harris, 2008; Hayes et al., 2006 as cited in Hayes & Ciarrochi, 2015; Blackledge, 2015). Hayes et al. (2012) explained that ACT is a mindfulness-based therapy and its goal is to improve psychological flexibility which is figured metaphorically as a protection shield for mental health and an essential key that leads to psychological well-being (Hayes et al., 2012). In addition, it was proved that psychological flexibility brings good outcomes for adolescent depression treatments (Halliburton & Cooper, 2015; Livheim et al., 2015; Levin et al., 2014; Jessica Swan et al., 2015). So, this study aims to understand the psychological flexibility as a mediator variable between mindfulness and depression in adolescents, which, hopefully, would expand the knowledge on the treatments for adolescent depression in Thailand.

Method

This research was focused on examining the role of psychological flexibility as a mediator variable between mindfulness and depression in adolescents. The researchers collected data from 312 high-school students in Phayao Province where the participants were randomly selected by the multistage cluster sampling technique.

Next, research instruments used in this study include Psychological Flexibility Scale for Adolescents (PFSA-Thai) (Thanpitcha Sannarin, 2019), Center for Epidemiological Studies-Depression Scale (CES-D-Thai) (Umaporn Trangkasombat et al., 1997) and Philadelphia Mindfulness Scale (PHLMS-Thai). (Chatchawan Silpakit et al., 2011)

Finally, the collected data were calculated and analyzed with computer software to find percentage, average, standard deviation, and the model of influence paths. The influence of the psychological flexibility as a mediator variable between mindfulness and depression in adolescents was analyzed based on the concept of Maximum Likelihood (ML), and Robust Maximum Likelihood (RML) for the estimated coefficient of the influence paths.

Results

The findings were summarized into two parts: 1) the demographic information of the participants, and 2) the structural relationship of psychological flexibility as a mediating factor between mindfulness and depression in adolescents.

Part 1 Demographic of the participants

Details		Number	Percentage
Gender	Male	104	33.30
	Female	208	66.70
	Total	**312**	**100.00**
Age (years old)	15	13	4.20
	16	108	34.60
	17	191	61.20
	Total	**312**	**100.00**
Education Level	Grade 12	14	4.50
	Grade 11	178	57.10
	Grade 10	120	38.50
	Total	**312**	**100.00**
Programs	Science	204	65.40
	Arts	105	33.60
	Not specified	3	1.0**0**
	Total	**312**	**100.00**
GPA	< 2.5	26	8.20
	2.5-2.99	56	17.90
	3-3.49	128	41.00
	3.5-4	98	31.40
	Not specified	4	1.30
	Total	**312**	**100.00**
Hometown	Phayao Province	282	90.40
	Other provinces	30	9.60
	Total	**312**	**100.00**
Average Monthly Allowance (Thai baht)	≤1,500	183	58.60
	1,501-3,000	92	29.50
	3,001-4,500	15	4.80
	>4,501-10,500	17	5.30
	Not specified	7	2.20
	Total	**312**	**100.00**

Table 1 Demographic of the participants

The results in Table 1 shows that most of the participants were female (66.70%), aged between 16 and 17 years old (34.60% and 61.20% respectively), studying in Grade 10 and 11 (38.50% and 58.10% respectively), enrolled in Science program and Arts program (65.40% and 33.60% respectively), their GPA were in the range of 3.00-3.49 and 3.50-4.00 (41.00% and 31.40% respectively). The hometown of most of the participants is Phayao Province (90.40%), and the average of their monthly allowance was not exceeding 1,500 Thai baht.

Part 2 The structural relationship of psychological flexibility as a mediating factor between mindfulness and depression

The structural relationship between variables are presented as Table 2, There is no statistical significance for the relationship between mindfulness and depression (Figure 1).

Paired Variables	Estimated Coefficient	Standard Coefficient (β)	S.E>	Est./ S.E.	Two-Tailed P-Value
PFSA on Mindful	0.840	0.588	0.052	11.240	0.000***
Depression					
PFSA	-0.618	-0.762	0.037	-20.658	0.000***
Mindful	-0.083	-0.072	0.042	-1.557	0.120

Remarks *p<0.05, **p<0.01, ***p<0.001

Table 2 Path coefficients among mindfulness, psychological flexibility, and depression

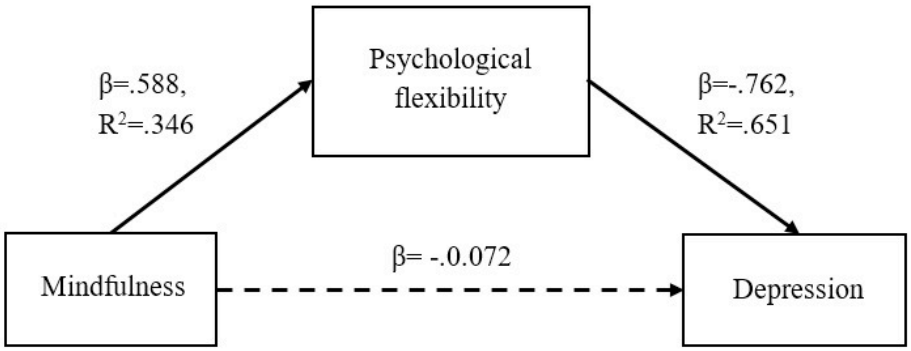

Figure 1 Structural model of relationships between the variables in this study

The researchers then re-specify the structural model by eliminating the pathway from mindfulness to depression. It was found that modified structural model showed the better model fit indices, which are as follows: 2.542 for the χ^2_{df}, 0.996 for the CFI, 0.071 for the RMSEA, and 0.016 for the SRMR. These fit indices demonstrated that the modified hypothesized model was good fitted with the empirical data (Hair et al., 2014) (Table 3).

Criteria	Model
Chi-square	
Chi-square (χ^2)	2.542; p < .001
Degree of freedom	1
χ^2_{df}	2.542
Absolute fit measure	
Comparative Fit Index (CFI)	0.996
Root Mean Square Error of Approximation (RMSEA)	0.071
Standardized Root Mean Square Residual (SRMR)	0.016

Table 3 Criteria and the results of the analysis of the consistency of the theoretical model and empirical data (measures of the model fit)

The result of the estimated coefficient (STDYX standardization) after model adjustment is appropriate and in accordance with the theoretical expectations. The results are as follows: 1) Mindfulness and psychological flexibility in adolescents: β = .588, R^2=.346; and 2) psychological flexibility in adolescents and depression in

adolescents: β = -.805, R^2=.6.48 (as in Table 4 and Figure 2). Therefore, it can be summarized that psychological flexibility is a full mediation.

Paired Variables	Estimated Coefficient	Standard Coefficient (β)	S.E>	Est./ S.E.	Two-Tailed P-Value
PFSA on Mindful	0.840	0.588	0.052	11.240	0.000***
Depress on PFSA	-0.652	-0.805	0.024	-33.155	0.000***

Remarks *p<0.05, **p<0.01, ***p<0.001

Table 4 The result of STDYX standardization after model adjustment

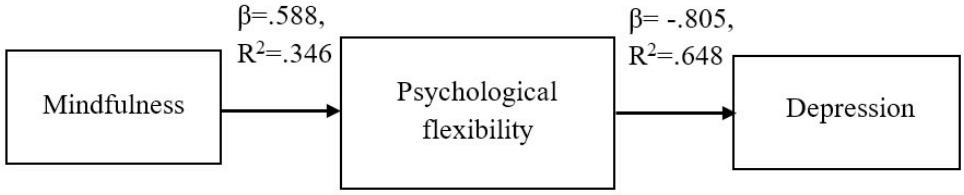

Figure 2 The model of the realigned paths of relationships between each variable

Conclusion

The model of causal relationships presented above is good fitted with the empirical data as for the following reasons: Firstly, the mindfulness influences directly and positively on the psychological flexibility of adolescents. In accordance with the ACT Theory which Hayes et al. (2012) had adopted the concept of mindfulness into the treatment as a basis following the ACT approach, it is explained that the therapy process is focused on observing and understanding the nature of thoughts, emotions, and physical reactions of a person. It is stated that when one is fully conscious, one will see his own thoughts that occur at that moment. Once the person observed himself mindfully, the person will understand the nature of mind (also called "Defusion") instead of putting oneself under pressure or tension. Also, the person will accept the inner experience in each moment happening (process of "Acceptance"). Therefore, it can be concluded that mindfulness can help a person in developing psychological flexibility (Harris, 2008; Halliburton and Cooper, 2015; Puolakanaho et al., 2018). Additionally, according to the study of Berghoff et al. (2018), it is found that low level of mindfulness is related to the Experiential Avoidance (EA) and Cognitive Fusion (CF), and, on the other hand, high level of mindfulness is related to value-guide behavior. Second, psychological flexibility in adolescents influences directly and negatively on the depression in adolescents. This fact is supported by the result of an experiment where the ACT approach was applied in treating adolescents who suffered depression. The outcome showed that psychological flexibility is effective in healing depression (Livheim et al., 2015; Halliburton and Cooper, 2015; Petts et al., 2017; Long and Hayes, 2014; Jessica Swan, 2015).

The findings of this study give supportive evidence that adolescents who are suffering depression can feel better by adopting the concept of mindfulness and psychological flexibility. Plus, psychologists and mental health professionals can also adapt and improve the conceptual idea in this study to improve the treatment procedure in order to reduce the depression of the students in schools. However, this study is considered

an initial step. The researchers still have not probed into each element of psychological flexibility due to the limited timeframe. Moreover, the data was collected from a group of regular adolescents, not specifically the depressed ones. Therefore, should there be any opportunity to extend this study, it is suggested that the data is collected from the depressed adolescents, too, for comparison, and the mechanism or the process of each element of the psychological flexibility should also be studied in order to expand the knowledge and gain further understandings.

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