

The Relationship Between Trait Mindfulness, Locus Of Control, And Subjective Well-Being In Adolescents: The Moderating Influence Of Extra-Curricular Activities.

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Abstract

Mindfulness, as an inner psychological state, can enhance the well-being of adolescents, facilitating competent interactions with their environment. The advantages of mindfulness, especially trait mindfulness (TM), are well documented in psychological research. Mindfulness enhances the ability to concentrate on the present moment and prepares individuals to respond thoughtfully rather than react impulsively in vital decision-making and problem-solving scenarios. The Locus of Control (LC) is a construct that is frequently associated with mindfulness in various psychological discussions. Locus of control refers to an individual's perception of their ability to influence the outcomes of events in their life, distinguishing between internal factors and external forces beyond their control. Another significant construct is extra-curricular activities (EAs). Increasing participation in extracurricular activities could contribute to meeting the rising mental health requirements of children. This study examined the relationship between TM, LC, and subjective well-being in a sample of 403 adolescents residing in Bangalore (India) under the moderating influence of EAs using structured equation modelling (SEM). It was seen that (i) TM significantly influenced subjective well-being, (ii) TM significantly influenced LC, and (iii) EAs positively moderated the relationship between TM and LC in adolescents.

Keywords: Trait Mindfulness, Locus of Control, Subjective Well-Being, Extracurricular Activities.

1. Introduction

Studies indicate that psychological, behavioral, and social wellness throughout childhood influences adult quality of life, social possibilities, mental health, and academic performance (Currie et al., 2012). It is believed that having better coping mechanisms and emotion control can help to safeguard psychological wellness and promote resilience (Greenberg & Harris, 2012). In fact, research has demonstrated that efficient handling of emotions is necessary for a child's healthy growth (Norona-Zhou & Tung, 2021). Well-being and emotion control are inextricably intertwined, which is significant to this study (Morrish et al., 2018). In light of this, practicing mindfulness meditation could help with emotion management (Wu et al., 2019). Since mental health is now a top issue in schools (Parikh et al., 2019), there is pressure to use evidence-based interventions that advance students' wellness. Some studies have examined the potential processes by which mindfulness can function, and only a small number of studies (e.g., Weare, 2018) have demonstrated that classroom-based mindfulness instruction may improve student well-being.

In recent years, the notion of mindfulness has gained popularity in the subjective of mental health and has drawn significant interest from a growing number of academics. According to Kabat-Zinn (1994), mindfulness means "focusing attention in a specific manner: on purpose, in this very moment, and without judgment." According to Wang and Kong (2020), mindfulness has been categorized as a condition or an aspect of personality in the literature. A person's inclination to be attentive when engaging in daily activities is reflected in their trait

mindfulness (TM) (Brown & Ryan, 2003). Greater TM scores have been linked to favorable outcomes like improved emotional regulation, improved mental and physical well-being, and higher life fulfillment, according to earlier research (e.g., Tang et al., 2019; Crego et al., 2020).

Non-cognitive competencies, including the Big Five personality traits; being agreeable, conscientious, an extrovert, emotionally stable, and open; are predictive of various employment and behavioral results. Non-cognitive skills are closely linked to well-being, affecting individuals' responses to different life events (Kesavayuth et al., 2015; Kesavayuth et al., 2022). This study examines a particular non-cognitive competence: locus of control (LC). LC is frequently understood as a type of human capital that is developed through parental engagement and educational investments (Elkins & Schurer, 2020). Genetic influences account for the remaining variation in LC, which is estimated to be in the range 30%-50% (Xue et al., 2020). The LC indicates the extent to which an individual views a causal connection between their behavior and the resultant reward (Malik et al., 2015). Those who perceive themselves as having control over life outcomes and their futures possess an internal LC. Conversely, individuals who assert that life events are primarily influenced by external factors, including destiny, chance, or the actions of others, possess an external LC (Kesavayuth, Tran, et al., 2022). Increasing empirical evidence underscores the significance of LC for behavioral and financial results. Research indicates that individuals with an internal LC will more probably achieve graduation from high school. Individuals possessing an internal LC tend to engage in healthier eating habits, increased physical activity, and reduced smoking rates, resulting in better health consequences (Coleman & Deleire, 2000; Dogonchi et al., 2022).

There are interventions to enhance the mental well-being of children. Enhancing access to extracurricular activities (EAs) for children presents a significant opportunity. EA is defined as "academic or non-academic endeavors... that take place outside of school hours, are not considered part of the syllabus, are not awarded an academic rating, and taking part is voluntary" (Bartkus et al., 2012). Engagement in EAs is linked to enhanced prosocial behavior, as well as increased involvement in school and proficiency in school (Bunnell & Pate, 2006; La Charite et al., 2023). Participation in experiential activities, such as summer events, is associated with improved mental health consequences, such as reduced anxiety and depression rates (Jose & Hutton, 2020; Bang et al., 2020). Nevertheless, the emphasis has primarily been restricted to sports, customized EA programs, and specific child sub-populations (e.g., those at social risk or with particular health conditions) (Gardner et al., 2013; Scott et al., 2015). To evaluate EAs as a possible mental health safeguarding or intervention strategy, it is essential to analyze the relationship between EAs participation and child mental health, identify which categories of children would derive the greatest benefit, and determine the types of EAs that should be prioritized for expansion.

The impact of mindfulness on subjective well-being has been diverse, thus this topic is debatable. Locus of control is a significant concept in psychology that is frequently associated with mindfulness. Nonetheless, limited research has examined the significance of locus of control, EAs, and mindfulness in relation to adolescent outcomes. The relationship among the variables of TM, EA, and locus of control remains unclear. Addressing EAs, locus of control, and the influence of TM on these variables, as well as their subsequent outcomes, will facilitate the selection of interventions necessary to foster favorable results in adolescents. Hence, the objectives of this study are as follows:

- To examine how TM influences LC in adolescents.
- To examine how TM influences subjective well-being in adolescents.
- To evaluate the moderation of EAs on the relationship between TM and LC

Section 2 reviews relevant literature and develops the hypotheses, section 3 presents the methodology of the study, section 4 describes the results, section 5 discusses the results, and section 6 concludes the study.

2. Review of Literature

Variations in mindfulness traits may be linked to fluctuations in LC. Research indicates that possessing an internal LC is associated with a healthier lifestyle and lower stress levels (Popova, 2012). The cultivation of an internalized LC control can be facilitated by mindful interventions and participation in EAs. Charles (2010) noted that the association between mindfulness and self-compassion is proportional, i.e., an increase in mindfulness practices correlates with enhanced self-compassion development. Klonowicz (2001) established the relationship between subjective well-being and LC, as well as the connection between mindfulness traits and LC. The results demonstrate that positive mindfulness traits may enhance LC, subsequently contributing to the well-being of the participants being studied. Externally oriented LC was linked to increased reactivity, subsequently resulting in diminished well-being among subjects. A low reactivity trait was associated with an internalized LC, which enhanced subjective well-being. Alongside enhancing mental well-being, these interventions also contributed to improvements in physical health. This highlights the importance of incorporating TM into the framework for studying LC, which subsequently influences subjective well-being. High reactivity is characterized by sensitivity to uncertainties and alterations in the immediate environment or work context. Additionally, individuals exhibiting low reactivity demonstrate a more optimistic perspective, characterized by reduced mood fluctuations and diminished health risks. Shubina (2018) identified that the relationship between mindfulness traits and LC is complex. While internal LC enhances self-esteem, its relationship cannot be considered direct. The relationship

between fulfillment, self-esteem, and LC is complex. These factors serve as significant indicators of psychological health and overall subjective well-being. Emotions such as self-worth, empowerment, and high self-esteem are significantly associated with internalized locus of control. These studies demonstrate that mindfulness traits should be considered when investigating variations of LOC in adolescents. Hence, the following hypotheses are proposed:

H1: TM positively impacts subjective well-being of adolescents.

H2: TM positively impacts internal locus of control of adolescents.

H3: TM positively impacts external locus of control of adolescents.

Changes in self-esteem and LC, while influenced by mindfulness, are frequently regulated by the extent of EAs undertaken by the adolescent. Research indicates that participation in EAs, including community service, sports, and other school-related events, significantly enhances adolescents' leadership skills. This, in turn, has a beneficial impact on overall achievement in school (Hancock et al., 2012). Bekomson et al. (2020) posited that EAs significantly influenced the beneficial impact on social success, academic achievement, and general well-being in adolescents. The research indicated that EAs can contribute to the development of more self-assured adolescents. Participation in activities such as excursions, athletics, singing, and public speaking contributes to the enhancement of self-confidence and academic achievement in students. Hence, the following hypotheses are proposed:

H4: Extracurricular activities moderates the relationship between TM and internal locus of control of adolescents.

H5: Extracurricular activities moderates the relationship between TM and external locus of control of adolescents.

Figure 1 presents the research model of the study.

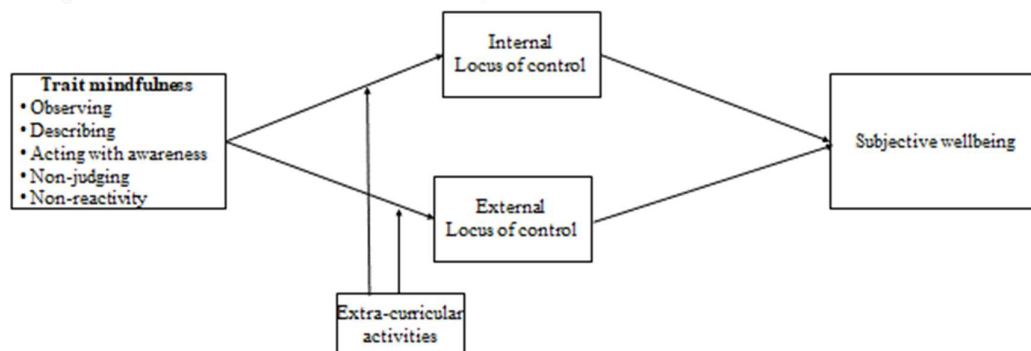


Figure 1: Research model

3. Methodology

The research utilized a descriptive and correlational methodology to delineate the characteristics and interrelations among TM, EAs, LC, and subjective well-being within the study population. The study adopts a positivistic paradigm and an empirical approach, grounded in observations. The variables considered were Subjective well-being (constructs: Affect, Self-recognition, Adaptation to life) as the dependent variable, Trait mindfulness among students (constructs: Acting with awareness, Describing, Observing, Non-judgement, and Non-reactivity), External locus of control, and Internal locus of control as independent variables, and Extracurricular activities (constructs: Sports, Pro-social activities, Performing arts, and Academic Clubs) as the moderating variable. Quantitative data from the selected population were collected using a structured questionnaire. The mindfulness of adolescents was assessed through a 14-item self-report Mindful Attention Awareness Scale for Adolescents (MAAS) (Goodman et al., 2017), while LC was evaluated using Rotter's locus of control scale (Wang et al., 2017). The questionnaire included sections to gather demographic information from participants, such as age, gender, type of school, and grades. Researchers developed a comprehensive questionnaire to assess a student's subjective well-being. Participants will be selected through convenience sampling from four zones: North, South, East, and West of Bangalore city. Participants included both males and females aged 16-19 years from various socio-economic backgrounds, enrolled in private, government, or government-aided schools. Assuming the adolescent population in Bangalore city is unspecified, a sample size of 403 was determined using Cochran's formula, with samples selected in equal numbers across the four zones through purposive sampling. The research model was tested using Structural Equation Model (SEM) through SmartPLS.

4. Results

4.1 Demographics

The study involved adolescents, comprising 56.1% males and 43.9% females, with a predominant age group of 15 to 16 year olds at 52.1%. The majority of students in this study were from grades 9 and 10, comprising 52.4% of the sample. The majority of adolescents' families drew income from private employment, and their parents possessed diverse educational qualifications (Table 1).

Table 1: Demographic details of the participants

	Frequency	Percent
Gender		
Male	226	56.1
Female	177	43.9
Age		
12-14 years	121	30
15-16 years	210	52.1
17-18 years	72	17.9
Class		
Class 7-8	31	7.7
Class 9-10	211	52.4
Class 11-12	161	40
Occupation of the head of the family		
Skilled worker (Carpenter/plumber/tailor etc)	78	19.4
Unskilled worker (Maid/car driver, etc)	62	15.4
Government employee	29	7.2
Private employee	215	53.3
Unemployed	19	4.7
Education of parents		
Illiterate	53	13.2
Up to high school	136	33.7
Diploma	45	11.2
Graduate	80	19.9
Post graduate or higher	89	22.1

Adolescents participated in a range of sports and recreational clubs, including volleyball, baseball, tennis, football, gymnastics, swimming, and skating. They participated in student organizations, student politics, volunteer activities, and student groups such as scouts or similar clubs for boys and girls. In terms of their academic achievement, they self-reported as passionate problem solvers, well-behaved in the classroom, and animated during class lectures. The students exhibited higher subjective well-being.

4.2 SEM results

PLS-SEM is frequently employed because of its robustness while estimating the constructs' reliability and validity for evaluating the relationships between them (Hair et al., 2017). The PLS algorithm helps to measure a model's validation. Bootstrapping has been employed in this study for evaluating the structural relationships amongst key components, i.e., TM, LC, EA, and Subjective Well-being.

4.2. Assessment Measurement Model

The measurement model's reliability (Figure 2) was validated using composite reliability and Cronbach's Alpha. All items related to TM, LC, EA, and Subjective Well-being exhibited Cronbach's Alpha values exceeding the threshold of 0.7. The composite reliability score and AVE value exceeded 0.7. Table 2 presents the internal consistency of the items associated with each component.

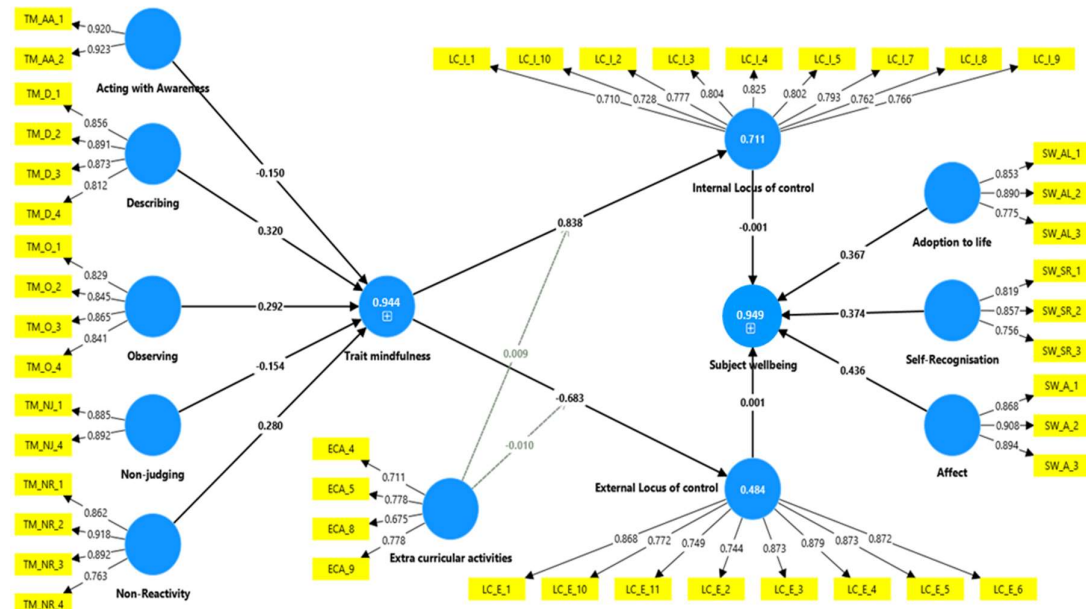


Figure 2 Measurement model

Table 2: Construct Reliability and Validity

Factors	Loadings	Indicator reliability	Cronbach's Alpha	rho_A	Composite Reliability	AVE
Extracurricular activities						
ECA_4	0.711	0.505				
ECA_5	0.778	0.605	0.723	0.729	0.826	0.543
ECA_8	0.675	0.455				
ECA_9	0.778	0.606				
External Locus of control						
LC_E_1	0.868	0.753				
LC_E_10	0.772	0.597				
LC_E_11	0.749	0.562				
LC_E_2	0.744	0.554	0.935	0.937	0.947	0.690
LC_E_3	0.873	0.763				
LC_E_4	0.879	0.773				
LC_E_5	0.873	0.762				
LC_E_6	0.872	0.761				
Internal Locus of control						
LC_I_1	0.710	0.504				
LC_I_10	0.728	0.530				
LC_I_2	0.777	0.604				
LC_I_3	0.804	0.646				
LC_I_4	0.825	0.681	0.917	0.920	0.931	0.600
LC_I_5	0.802	0.643				
LC_I_7	0.793	0.629				
LC_I_8	0.762	0.581				
LC_I_9	0.766	0.587				
Adoption to life						
SW_AL_1	0.853	0.727				
SW_AL_2	0.890	0.792	0.792	0.814	0.878	0.707
SW_AL_3	0.775	0.601				
Affect						
SW_A_1	0.868	0.754				
SW_A_2	0.908	0.825	0.869	0.870	0.920	0.793
SW_A_3	0.894	0.799				
Self-Reorganisation						
SW_SR_1	0.819	0.671	0.742	0.756	0.853	0.659

Factors	Loadings	Indicator reliability	Cronbach's Alpha	rho_A	Composite Reliability	AVE
SW_SR_2	0.796	0.633				
SW_SR_3	0.756	0.572				
Acting with Awareness						
TM_AA_1	0.920	0.846	0.822	0.823	0.918	0.849
TM_AA_2	0.923	0.852				
Describing						
TM_D_1	0.856	0.732				
TM_D_2	0.891	0.794	0.880	0.882	0.918	0.737
TM_D_3	0.873	0.762				
TM_D_4	0.812	0.659				
Non-judging						
TM_NJ_1	0.885	0.783	0.734	0.735	0.883	0.790
TM_NJ_4	0.892	0.797				
Non-Reactivity						
TM_NR_1	0.862	0.743				
TM_NR_2	0.918	0.843	0.883	0.904	0.919	0.741
TM_NR_3	0.892	0.795				
TM_NR_4	0.763	0.583				
Observing						
TM_O_1	0.829	0.687				
TM_O_2	0.845	0.714	0.867	0.870	0.909	0.714
TM_O_3	0.865	0.749				
TM_O_4	0.841	0.707				

4.2. Discriminant Validity

The Fornell-Larcker metrics were utilized to assess discriminant validity (Table 3). According to the criterion established by Henseler et al. (2009), all constructs demonstrated discriminant validity. The Heterotrait-Monotrait (HTMT) ratio, indicative of discriminant validity, must be less than 0.90, according to Franke and Sarstedt (2019). This value was found to be higher than all HTMT values, indicating that participants viewed the variables differently. Table 4 presents the HTMT values.

Table 3: Fornell-Larcker Criterion

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Acting with Awareness (1)	0.92												
Adoption to life (2)	0.44	0.84											
Affect (3)	0.52	0.49	0.89										
Describing (4)	-0.65	-0.59	-0.61	0.86									
External Locus of control (5)	0.47	0.53	0.66	-0.60	0.83								
Extracurricular activities (6)	0.08	0.08	0.08	-0.08	0.15	0.74							
Internal Locus of control (7)	-0.64	-0.62	-0.65	0.78	-0.67	-0.12	0.77						
Non-Reactivity (8)	-0.44	-0.51	-0.56	0.69	-0.59	-0.10	0.63	0.86					
Non-judging (9)	0.48	0.48	0.47	-0.65	0.56	0.06	-0.67	-0.55	0.89				
Observing(10)	-0.53	-0.56	-0.56	0.69	-0.60	-0.07	0.74	0.57	-0.67	0.84			
Self-Reorganisation (11)	0.53	0.63	0.63	-0.71	0.59	0.08	-0.68	-0.59	0.57	-0.66	0.81		
Subjective well-being (12)	0.59	0.82	0.85	-0.75	0.70	0.10	-0.77	-0.65	0.60	-0.70	0.88	0.72	
TM (13)	-0.71	-0.64	-0.67	0.91	-0.69	-0.09	0.84	0.82	-0.79	0.86	-0.75	-0.81	0.72

Table 1 Heterotrait-Monotrait Ratio (HTMT)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Acting with Awareness (1)														
Adoption to life (2)	0.54													
Affect (3)	0.62	0.57												
Describing (4)	0.76	0.69	0.70											
External Locus of control (5)	0.54	0.60	0.74	0.66										
Extracurricular activities (6)	0.11	0.10	0.10	0.09	0.17									
Internal Locus of control (7)	0.74	0.71	0.72	0.86	0.72	0.15								
Non-Reactivity (8)	0.50	0.59	0.62	0.77	0.64	0.12	0.67							
Non-judging (9)	0.62	0.62	0.59	0.81	0.67	0.09	0.81	0.66						
Observing(10)	0.62	0.67	0.65	0.79	0.66	0.09	0.83	0.63	0.83					
Self-Reorganisation (11)	0.67	0.79	0.77	0.87	0.70	0.11	0.81	0.70	0.77	0.82				

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Subjective well-being (12)	0.69	0.98	0.96	0.85	0.77	0.12	0.84	0.72	0.74	0.80	1.08			
TM (13)	0.81	0.72	0.74	1.00	0.74	0.11	0.90	0.90	0.94	0.94	0.89	0.89		
Extracurricular activities x TM (14)	0.06	0.02	0.03	0.02	0.03	0.33	0.02	0.03	0.05	0.03	0.05	0.04	0.04	

4.2. Evaluation of model Fitness

The model's fitness was evaluated by determining the Q^2 value, which was calculated to be 0.626 (i.e., above 0), indicating an acceptable level of fit (Table 5). Figure 4 illustrates the predictive relevance (Q^2) of the model. The model fit indices were within acceptable ranges: SRMR=0.084, d_ ULS=18.052, d_ G=7.965, χ^2 =8886.126, and NFI=0.491.

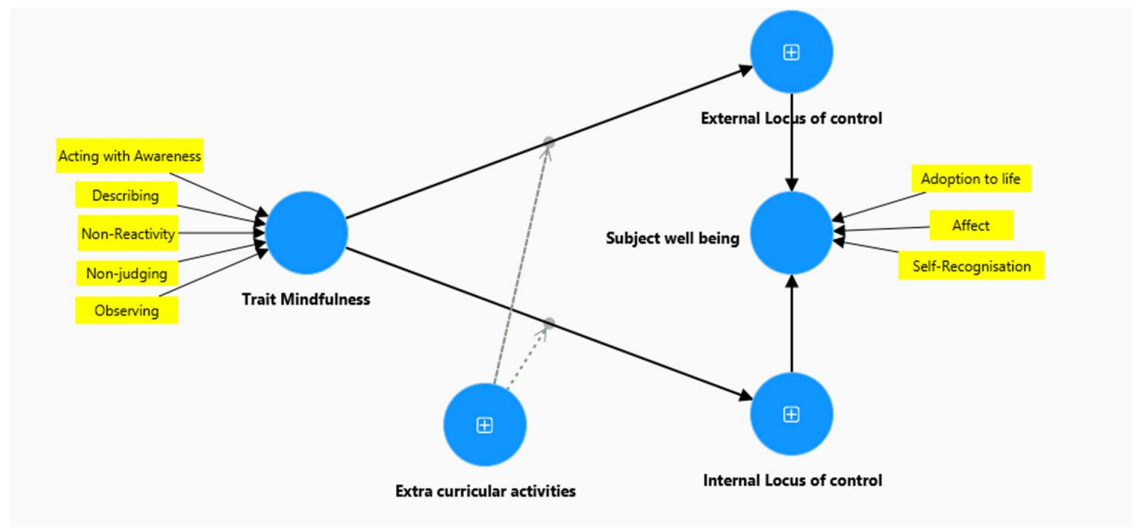


Figure 1 Predictive Relevance

Table 5: Predictive Relevance

	Q^2 predict	RMSE	MAE
Subjective well being	0.626	0.616	0.464

Table 5 Model Fit summary

Test	Saturated Model	Estimated Model
SRMR	0.084	0.088
d_ ULS	18.052	19.836
d_ G	7.965	8.166
Chi-Square	8886.126	9043.499
NFI	0.491	0.482

The R^2 values for the External LC and Internal LC are 0.484 and 0.711, respectively, while those for Subjective well-being and TM are 0.949 and 0.944, respectively (Table 6). This means that 94.9% of variation in Subjective well-being can be explained by External LC and Internal LC. Similarly, a variation of 48.4% in External LC and 71.1% Internal LC can be explained by TM, and 94.4% variation in TM can be explained by its constructs. The F^2 values showed in Table 7 demonstrate that the impacts of Adoption to life and Affect on Subjective well-being, and the impacts of Acting with Awareness, Describing, Non-Reactivity, Non-judging, and Observing are high, while the impacts of TM on Internal and External LC are medium.

Table 6: R Square

	R-square	R-square adjusted
External Locus of control	0.484	0.480
Internal Locus of control	0.711	0.708

Subjective well-being	0.949	0.946
TM	0.944	0.939

Table 7: F square

	External Locus of control	Internal Locus of control	Subjective well-being	TM
Acting with Awareness				2702.312
Adoption to life			3270.223	
Affect			3962.937	
Describing				6600.392
Non-Reactivity				8159.406
Non-judging				2388.316
Observing				7729.403
Self-Reorganisation			2704.098	
TM	0.895	2.403		

4.2. Testing of Model

The structural model was analyzed following the assessment of the measurement model. The bootstrapping method involved conducting 5000 sampling iterations to determine the path coefficient and t-values. Additionally, result values are deemed statistically significant when the t value exceeds 1.96. Figure 3 illustrates the structural model. The PLS algorithm function method bootstrapping was then used for calculating the standardized beta values (β) of route coefficients (Table 7).

The following can be inferred from Table 8:

- TM significantly impacts Subjective well-being ($t=26.368$, $p<0.01$). Hence, hypothesis *H1: TM positively impacts subjective well-being of adolescents* is accepted.
- TM significantly impacts Internal Locus of control ($t=51.944$, $p<0.01$). Hence, hypothesis *H2: TM positively impacts internal locus of control of adolescents* is accepted.
- TM significantly impacts External Locus of control ($t=23.079$, $p<0.01$). Hence, hypothesis *H3: TM positively impacts external locus of control of adolescents* is accepted.
- EAs do not moderate the relationship between TM and Internal Locus of control ($t=0.159$, $p<0.05$). Hence, the hypothesis *H4: Extracurricular activities moderate the relationship between TM and internal locus of control of adolescents* is accepted. ($t=0.218$, $p<0.05$).
- EAs do not moderate the relationship between TM and External Locus of control ($t=0.159$, $p<0.05$). Hence, the hypothesis *H5: Extracurricular activities moderate the relationship between TM and external locus of control of adolescents* is accepted.

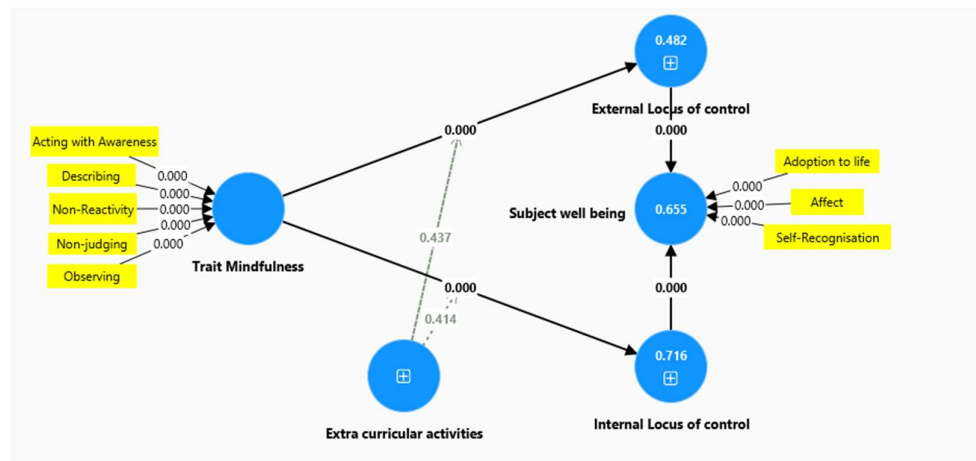


Figure 2 Structural Model

Table 8: Path Coefficients

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics ((O/STDEV))	P values
External Locus of control -> Subjective well being	0.356	0.359	0.052	6.780	0.000

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T ((O/STDEV))	statistics	P values
Extracurricular activities -> External Locus of control	0.085	0.083	0.037	2.274		0.012
Extracurricular activities -> Internal Locus of control	-0.045	-0.044	0.027	1.680		0.047
Extracurricular activities -> Subjective well being	0.054	0.052	0.022	2.483		0.007
Internal Locus of control -> Subjective well being	-0.526	-0.523	0.053	9.970		0.000
TM -> External Locus of control	-0.682	-0.684	0.030	23.079		0.000
TM -> Internal Locus of control	0.841	0.842	0.016	51.944		0.000
TM -> Subjective well being	-0.685	-0.686	0.026	26.368		0.000
Extracurricular activities x TM -> External Locus of control	-0.056	-0.057	0.036	1.920		0.043
Extracurricular activities x TM -> Internal Locus of control	0.047	0.030	0.031	1.948		0.041
Extracurricular activities x TM -> Subjective well being	-0.046	-0.026	0.023	1.915		0.043

5. Discussion

It is seen in this study that TM significantly impacts Subjective well-being. Numerous studies have consistently linked higher TM with improved psychological well-being, showing increased favorable affect, self-compassion, empathetic thinking and views of life objective (Schutte, 2011; Kong et al., 2014). Negative associations exist between negative affect, pressure, anxiousness, and signs of depressive disorders (Tomlinson et al., 2018; Carpenter et al., 2019). Similarly, increased TM has been linked to enhanced cognitive performance, including reduced wandering thoughts (Morrison et al., 2014), increased focus (Shin et al., 2017), and higher academic ratings (Cabalero et al., 2019). TM is recognized as a significant element in the connection between lived experiences and wellness (Beshai et al., 2022; Mehmet et al., 2022). TM typically shows a rise with mindfulness practice (Quagalia et al., 2016). TM serves as both an indicator and a mediator of alterations in clinical manifestations following mindfulness training (Gu et al., 2016). Enhancements in TM frequently mediate reductions in psychological distress or betterment in clinical indicators (La Belle et al., 2015; Goldberg et al., 2020).

It is also seen that TM positively impacts internal LC of adolescents. TM, defined by a present-oriented awareness and acknowledgment, has been shown to influence significant psychological variables, including internal LC and the perception of purpose in life, thus enhancing life fulfillment (Yuan et al., 2021). This phenomenon has been documented in adolescents (Singh & Gupta, 2021)d, underscoring the widespread advantages of mindfulness techniques. The relationship between LC and TM in forecasting life satisfaction, as indicated by Sugiura (2018), highlights the complex and varied aspects of subjective well-being. This interaction indicates that TM may directly enhance life satisfaction and also influence the relationship between LC and life satisfaction. These findings highlight the intricate factors affecting life satisfaction and the necessity for broad strategies in psychological studies and their applications.

Lastly, EAs were seen to moderate the relationship between TM and LC, which could lead to well-being of adolescents. Unfortunately, access to EAs is characterized by inequity. Insufficient financial and social capital, diminished resources (such as available caregivers and transportation), and variations in access to school-based educational assistance likely cause disparities in taking part across different child, family, and neighborhood characteristics (An & Western, 2019). The last few years have witnessed a drop in youth sports engagement, with 30% of children who earlier engaged in sports prior to the pandemic expressing no interest in resuming activities. Additional constraints on EA availability occurred as a result of the COVID-19 pandemic (Koç & Koç, 2021). Financial obstacles to participation are increasingly evident as more schools impose charges for extracurricular activities, compounded by limited resources for parks and recreational activities (Roth, 2020). These are matters of concern requiring collective action by academicians, educational institutions, and policy makers.

6. Conclusion

The present study was conducted on the adolescents from schools of Bangalore, India. The study participants were dominantly 15-16 years aged students, equally representing both the gender and mostly studied in class 9-10. It was seen from the study that: (i) TM positively impacts subjective well-being of adolescents, (ii) TM positively impacts both internal and external LC of adolescents, and (iii) Extracurricular activities moderate the relationship between TM and both internal and external LC of adolescents.

The study has certain limitations, which are as follows:

- The study gathered data from students enrolled in schools located in Bangalore, a cosmopolitan and technologically advanced city. To generalize TM levels, LC, and well-being of adolescents, it is essential to gather data from both urban and rural regions.
- This study focused on specific variables, including TM, LC, EAs, and subjective well-being. Incorporating additional variables, such as emotions like anxiousness, perceived pleasure, boredom, and self-discipline, can enhance the understanding of adolescents' psychological state of mind.
- The study employed a cross-sectional design, with data collection occurring over a specified time frame. The understanding of the changes in students' mindfulness levels over time is hence inadequate.
- A self-assessed questionnaire-based research was carried out in this study. Participants may have responded to the questions in ways that they feel acceptable by society rather than indicating their true feelings or behaviors. This may result in an exaggeration of favorable behaviors and an underestimation of unfavorable behaviors. Future studies may employ a mixed-methods approach that does not rely solely on self-report data and questionnaires. Behavioral assessments of students can be conducted through teacher reports and training session evaluation results to obtain more objective data. A qualitative technique may be employed in future studies to analyze detailed interviews with adolescents or teachers' perceptions of students. Research includes interviews with parents or other caregivers to assess their mental states. Also, researchers should investigate the psychological states of young people in other metropolitan areas of India. Comparisons between schools in urban and rural areas can provide insights into variations in the mental states of adolescents. Lastly, cross-cultural studies involving international samples can improve our knowledge of adolescent behavior and wellness.

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