

# Enhancing Academic Adjustment, Motivation and Life Satisfaction of Female Preparatory School Students Using Acceptance and Commitment Therapy

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## Abstract

Academic motivation, adjustment, and life satisfaction are among the most important factors that have a great impact on students' success at school and well-being in life which are highly determined by psychological flexibility. Acceptance and commitment therapy (ACT), which is a mindfulness-based therapy, is believed to impact students' psychological flexibility. The aim of this study was to investigate the effectiveness of ACT group intervention on academic achievement motivation, adjustment, and life satisfaction of students. A program that consisted of 10 weekly sessions, each of which took two hours in duration was implemented for 45 grade 11 female students at Bole Preparatory School following The Melbourne Clinic ACT group treatment procedure. Participants were recruited based on their response to the call for participation, assessment through intake interview and confirmed availability to attend the intervention sessions. The participants were randomly assigned into two groups: intervention (treatment) group (ACT) and the waitlist (control) group (WLG). Both baseline (pre-test) and end line (post-test) were conducted. Adjustment Inventory for School Students (AISS), Deo and Mohan Achievement Motivation (DMAM), Acceptance and Action Questionnaire (AAQ II), Cognitive Fusion Questionnaire (CFQ), The Mindful Attention and Awareness Scale (MAAS), Valued Living Questionnaire (VLQ) and Satisfaction with Life as a Whole and Personal Wellbeing Index Scale (PWI) were used to measure psychological flexibility academic adjustment, academic motivation, satisfaction with life, and personal wellbeing. A repeated measure ANOVA model was used to test the hypothesis. The results showed that students in the ACT group reported greater academic motivation, adjustments, life satisfaction and psychological flexibility than those in the WLG after receiving the 10-weeks long standard ACT group intervention. Based on the findings of this study, it can be concluded that ACT group intervention can help to boost achievement motivation, adjustment, and satisfaction in life among female high school students.

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## Introduction

Achievement motivation and School adjustment are among the most important factors that have great impact on students' success at school and beyond. Motivation and adjustment increase productivity at school and well-being in life. The lack of them, on the other hand, leads to frustration and disengagement in academic activities. Research tells us that the lack of academic motivation may arise from poor self-image and efficacy, lack of belief on the

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value of effort, missing values in the academic activities and lack of inspiring qualities in the curricular activities (Legault, Green-Demers & Pelletier, 2006). In addition to lack of motivation, students face many changes and challenges in and outside school. These issues call for an adjustment. As Sinha and Singha (1984) state, students need emotional (personal), social and educational adjustments to succeed at School and in life.

Psychological flexibility is one of the most important approaches to dealing with students' motivation (achievement emotion) and school adjustment (Enayati, Dousti & Mirzaian, 2018). Psychological flexibility, which is the center of Acceptance and Commitment Therapy (ACT), is believed to help students to be connected to the present moment and to manage emotions and actions regardless of the unpleasant thoughts or feelings they might experience. ACT is also believed to help students act in harmony with their values and life goals.

At a broad level, ACT is a mindfulness, acceptance and values-based psychotherapy that is grounded in behavioral and cognitive theory (Hayes, Masuda & DeMey, 2003). It targets psychological problems with the general goal of increasing psychological flexibility – the ability to contact the present moment more fully as a conscious human being, and to change or persevere in behavior. This leads to valued ends. In terms of intervention, the two major goals of ACT are to foster (a) acceptance of problematic, unhelpful thoughts and feelings that cannot be controlled, and (b) commitment and action toward living a life that is consistent with one's values. Psychological flexibility is established through six core processes named ACT processes. These processes include Acceptance, Cognitive defusion, Being present, Self as Context, Values and Committed action. Rather than having to eliminate difficult private experiences from occurring at all, ACT teaches clients and therapists how to alter the way they function mentally. This empowering message has been shown to help clients cope with a wide variety of clinical problems.

In psychological flexibility, it is assumed that students can perform much better and ensure their well-being when they deliberately choose to perform in accordance with their own goals and values whatever the situation they are in (Asikainen, Ailikari & Mattson 2017). So, when the basic components/processes of psychological flexibility are addressed, the personal well-being of the student will be improved. This in turn boosts the achievement motivation and school adjustment (emotional, social, and educational) of the student.

Even though there is a scarcity of empirical evidence about ACT and its impact on female students especially those in high school, there are some studies that indicate the effectiveness of ACT in school settings. The studies have shown that ACT helps students to build variety of skills such as being aware of their internal experiences, choosing actions proactively instead of being reactive and spontaneous, looking past judgments and criticism regarding what they feel or think, constructing or reconstructing their values and acting in agreement with them (Paliliunas, Belisle & Dixon, 2018; Enayati et al., 2018). In a study conducted on ACT as a school-based group intervention for students, the experiential avoidance and hyperactivity or inattention of the students were decreased after receiving universal ACT intervention (Takahashia, Ishizub, Matsubaraa, Ohtsukic & Shimoda, 2020). ACT has also been found to reduce students' mental health issues depression, anger, stress, anxiety, shame and exhaustion in addition to improving their psychological well-being (Hekmati, Ranjbar, Eskin, Drake & Jobson, 2021; Gendron, Kouremenou & Rusu, 2016; Gregoire, Lachance, Bouffard & Dionne, 2017). The study conducted by Enayati, et al.

(2018) indicated that ACT had improved the emotion regulation skill of female students and changed the attitude they have about themselves. They have also indicated that the students re-examined and articulated their values and goals towards which they deployed committed actions. Besides that, the female students' quality of life had been significantly improved after receiving ACT intervention.

Studies have indicated that ACT intervention was found to provide students capabilities to adjust combat distresses in their post-secondary study abroad (Muto, Hayes & Jeffcoat, 2011) and reduce social anxiety in middle school students (Rostami, Veisi, Dehkordi & Alkasir, 2014). Azadeh, Kazemi-Zahreimi, and Besharat (2016) conducted a research on female students with social anxiety disorder. The research showed that female students' interpersonal problem was reduced as their psychological flexibility increase after ACT intervention. ACT has also been found to promote academic engagement, increase performance, and better adjustment in schools (Asikainen et al., 2017; Gregoire et al., 2017; Paliliunas et al., 2018). Academic procrastination was significantly reduced and committed action was significantly improved among students who received ACT than those in the control group (Gadnon, Dionne, Raymond & Gregore, 2019). In addition, Livheim, et al. (2014) found that mental health issues like high stress and depressive symptoms were improved in the ACT group students. Their mindfulness had also been increased among the students.

Ethiopian Demographic and Health Survey (CSA, 2016) shows that men are better educated than women in Ethiopia. According to the report, about half of women (48%) and 28% of men aged 15-49 have no formal education. Even though the expansion of higher learning institutes in Ethiopia gave more access to female students, the overall enrolment is still 34.14% at the undergraduate level (MOE 2017; Bishaw & Melesse, 2017). Data clearly show the need for strong support for female students at high and preparatory schools so that they can pursue to higher education.

Studies conducted at primary and secondary schools in Addis Ababa (Kolfe Keranio, Kirkos, and Akaki Kaliti sub cities) and other parts of Ethiopia, pointed out family, student and school related factors that highly affected students' motivation and achievement at school (Abebe, 2017; Debalke, 2018; Moges & Fyssa, 2020). Even though empirical research specific to Bole Preparatory school on this issue couldn't be found, studies in similar schools in Addis Ababa showed that such problems exist among female students. Ethiopian Education Development Roadmap (2018-30) states that in most of the secondary school students' engagement, which was measured by motivation to learn, enthusiasm in academic activities like reading and attendance, energy, and perseverance was found to be very low.

Moreover, the investigators' personal communication with the students and officials including school counselors indicated the challenges female students face at the school. During the academic year when the investigation was conducted (2018/19), stress, anxiety, depression, financial and economic problem, educational and academic challenges, discipline problem, lack of goals in life and addiction were mentioned by the school counselors as common counseling issues for individual counseling needs. Lack of motivation, poor academic achievement, stress due to economic and financial challenge, unfavorable school environment, teachers behavior and lack of discipline among their fellow students were mentioned as common counseling issues by students themselves (personal communication).

These factors require adjustment which is expressed by psychological flexibility or acceptance and goal-oriented commitment.

To achieve this, well-established and structured counseling services delivered for the students has a great impact. In countries like Ethiopia where there is poor school counseling, identifying a better counseling therapy will have a great impact to satisfy the needs of boosting academic adjustment, motivation, and life satisfaction among students.

As stated above, academic motivation and adjustment are among the most important factors that have great impact on students' success at school and well-being in life. Motivation and adjustment increase productivity at school and well-being in life. The lack of them, on the other hand, leads to frustration and disengagement in academic activities. Psychological flexibility helps to dealing with students' motivation (achievement emotion) and adjustment (Enayati, et al., 2018). Psychological flexibility is believed to help students to be connected to the present moment and to manage emotions and actions regardless of the unpleasant thoughts or feelings they might experience. It is also believed to help students act in harmony with their values and life goals.

In psychological flexibility, it is assumed that students can perform much better and ensure their well-being when they deliberately choose to perform in accordance with their own goals and values whatever the situation is (Asikainen et al., 2017). So, when the basic components of psychological flexibility (acceptance, cognitive defusion, value, goals, mindfulness and committed action) are addressed, the personal well-being of the student will be improved. This in turn boosts the academic motivation and adjustment (emotional, social, and educational) of the student.

## **The Present Study**

This study aimed to explore the effectiveness of the ACT on outcomes (school adjustment, achievement motivation, and life satisfaction) of female students through enhancing therapeutic processes (acceptance, cognitive diffusion, mindfulness, committed action and values). To the best of our knowledge, no study has been conducted (published) regarding effectiveness of ACT to enhance academic adjustment, motivation, and life satisfaction of students in Ethiopia. Besides, even though there is much research conducted on the effectiveness of ACT on different mental health issues of students, there is a shortage of evidence on its effectiveness in academic adjustment, motivation and life satisfaction of students from various parts of the world. Conducting this research is believed to help us verify whether the effectiveness that has been published in other parts of the world can be repeated here in our context. It helps us also to see the potential utility of the ACT model in our school system and culture. Testing it in our culture will also help us to frame specific expectations and customs within the ACT experience considering our concept of mental health and healing. It will help us improve school counseling through the application of empirically proven therapeutic model.

It is hypothesized that there will be a significant improvement in ACT group participants' school adjustment, achievement motivation, and life satisfaction from baseline to post-treatment following a 10-weeks long ACT treatment in a group setting.

## Methods

### Design

The study was Randomized Controlled Trial research. It was designed to assess the effectiveness of ACT in enhancing school adjustment and achievement motivation among female students. It had also assessed the efficacy of ACT in improving quality of life and recognition of positive feelings towards self and the environment. This study was conducted at the guidance and counseling center of Bole Preparatory School in Addis Ababa.

### Participants and Screening Measures

The subjects registered to participate in the study were 70 Grade 11 female students at Bole Preparatory School. Mini-Media and classroom advertisements and flyers describing the free psycho-educational intervention were released and distributed calling for volunteer participants. A poster advertisement was also posted on the school's notice boards inviting volunteers. Those students who were attending classes at 11<sup>th</sup> grade by the time the research was conducted, were able to attend the scheduled psycho-educational workshops, took the intake assessment through telephone and had at least scored less than 3.0 on the Ethiopian General Secondary Education Certificate Examination (EGSECE) were selected eligible for the intervention. The intake assessment contained questions that ask students' personal view of their level of motivation, adjustment, and life satisfaction. Those who felt less motivated, adjusted and satisfied and met the other criteria were shortlisted for the research. The subjects were asked for their informed consent to participate in the study.

### Instruments/Measures

The following self-report questionnaires were completed by participants to measure ACT process measures (acceptance, experiential avoidance, cognitive fusion, mindfulness, and valued living) and outcome measures (school adjustment, achievement motivation, satisfaction with life, and personal wellbeing).

School adjustment was measured by Adjustment Inventory for School Students (AISS). AISS is a tool developed by Sinha and Singh (1984). It consists of 60 items. These items are equally distributed in each area of adjustment (emotional, social, and educational). The responses are in 'yes' and 'no' form, and scored as 0 or 1. The minimum score is 0 while the maximum score being 60. High scores on AISS imply poor levels of adjustment whereas low scores indicate good adjustment.

Achievement motivation was measured by Deo and Mohan Achievement Motivation (DMAM). DMAM was constructed by Pratibha Deo and Asha Mohan in 1985 (Deo & Mohan, 1985). The scale consists of 50 items out of which 37 items are positive while 13 are negative. Participants are expected to rate the frequency of the statements which indicates their feelings on a five-point scale.

Life satisfaction was measured by Satisfaction with Life as a Whole and Personal Wellbeing Index Scale (PWI; International Wellbeing Group, 2006). PWI is a two-part measure of quality of life. The first part is comprised of a single-item measure of overall life satisfaction which asks the individual to rate the extent to which they are satisfied with their life as a whole, based on their life and personal circumstances. The second part of the

measure is the PWI that contains 8 items of satisfaction, each one corresponding to quality-of-life domains including standard of living, health, achieving in life, relationships, safety, community-connectedness, future security, and spirituality/religion.

Acceptance and committed action were measured by Acceptance and Action Questionnaire-II (AAQ-II). AAQ-II is a 7-item, self-report measure of experiential avoidance, or the tendency to avoid negative private events such as thoughts, feelings, or bodily sensations (Bond et al., 2011). The participants were instructed to rate how true each of the 10 statements was for them using a 7-point Likert scale.

Cognitive fusion was measured by Cognitive Fusion Questionnaire (CFQ). CFQ is a 13-item self-report questionnaire designed to measure cognitive fusion and defusion as a general process (Gillanders, 2013). Participants rated how true each statement was for them on a 7-point Likert scale. Higher scores reflect higher levels of cognitive fusion.

Mindfulness was measured by The Mindful Attention and Awareness Scale (MAAS). MASS is a 15-item questionnaire that measures dispositional mindfulness (Brown & Ray, 2003). The participants were asked to report how often he/she believed he/she had experienced by rating each item on a 6-point Likert scale. Higher total scores reflect higher dispositional mindfulness.

Values were measured by Valued Living Questionnaire (VLQ). VLQ is a 2-part self-report questionnaire, designed to measure valued living, defined as “the extent to which an individual contact his or her chosen values in everyday life” (Wilson, Sandoz, Kitchens & Roberts, 2010). It consists of a 10-point Likert scale where participants rate the importance of 10 domains of living. A Valued Living composite score represents how consistent the individual has been in living in accord with their important values across all life domains, with higher scores indicating higher values consistency.

The Cronbach’s alpha coefficient of all the instruments was validated before they were applied in this study (see Table 1).

## **Assessment Procedure**

At baseline, all individuals who were registered and screened to participate in the ACT group program (N=70) were called for an orientation session out of which only 56 attended. After the orientation, they were provided with an envelope that contained a consent form and the questionnaire package at the first group session. Participants were asked to complete the consent form and questionnaire package that contained 7 questionnaires and deliver it during the first group session. The questionnaire package was taken participants approximately 60 minutes on average to complete. In addition, a Demographic Questionnaire was administered to gather factual data about each participant. Then, of the consenting clients 49 of them completed the pre-intervention questionnaires and were randomly assigned based on the initial two digits of their code to participate in one of the two groups: treatment group or waiting list (control) group (29 to intervention group; 20 to wait-list group). After that, all study participants received treatment with ACT free of charge in two rounds. The treatment group received ACT first and the waiting list group received ACT later. Finally, participants completed the post-treatment questionnaire package immediately at the end of the final group session. Forty-five (45) completed the treatment and took the post-treatment questionnaire.

**Table 1***Reliability of the Instruments as Measured in Cronbach's Alpha Coefficient*

Instrument/ Tool	Cronbach's alpha coefficient ( $\alpha$ ) from literatures	Cronbach's alpha coefficient ( $\alpha$ ) in this study
Acceptance and Action Questionnaire (AAQ- II)	$\alpha = 0.93$ (Christie et al., 2013)	0.90
Cognitive Fusion Questionnaire (CFQ-13)	$\alpha = 0.85; 0.91, 0.95$ (Christie et al., 2013; Dionne, et al., 2016; Ruiz, Suarez-Falcon, Hernandez & Gillanders, 2016).	0.86
Valued Living Questionnaire (VLQ)	$\alpha = 0.72 - 0.79$ (Wilson, Sandoz, Kitchens & Roberts, 2010; Cotter, 2011).	0.80
Mindful Attention and Awareness Scale (MAAS)	$\alpha = 0.82; 0.92$ (Brown, 2003; Christie et al., 2013)	0.89
Satisfaction with Life as a Whole and Personal Well-being Index Scale (PWI)	$\alpha = 0.70; 0.85$ (Lau & Cummins, 2005; Beuningen & Jonge, 2011)	0.83
Emotional Adjustment (AISS_E)	$\alpha = 0.96$ (Sinha & Singha, 1984).	0.92
Social Adjustment (AISS_S)	$\alpha = 0.90$ (Sinha & Singha, 1984).	0.88
Educational Adjustment (AISS_Edu.)	$\alpha = 0.93$ (Sinha & Singha, 1984).	0.90
Total Adjustment (AISS_Total)	$\alpha = 0.93$ (Sinha & Singha, 1984).	0.87
Deo and Mohan Achievement Motivation (DAAM)	$\alpha = 0.78$ (Deo & Mohan, 1985; Farheen, 2018)	0.80

### Treatment Procedure

The books entitled *Acceptance and commitment therapy: An experiential approach to behavior change* (Hayes, Strosahl & Wilson, 1999) and *ACT for Adolescents: Treating Teens and Adolescents in Individual and Group Therapy* (Turrell & Bell, 2016) were used as manuals for the treatment. It was applied following The Melbourne Clinic ACT group treatment procedure (Table 2).

**Table 2***Treatment Sessions with Core Activities Done in Each Session*

Session	Major Activity
1	Introduction to ACT, Group Therapy, Assessment and Creative Hopelessness
2	ACT Foundations, achievement motivation, school adjustment and life satisfaction
3	Introduction to Acceptance
4	Introduction to Values
5	Introduction to Cognitive Fusion and Defusion
6	Values and Committed Action
7	Acceptance and Values Revisited and Introduction to the Observing Self

Session	Major Activity
8	Choice Points and Values in the Real World
9	The Observing Self and Maintaining Committed Action
10	Revision and Consolidation of ACT Principles

The ACT group intervention was delivered by the researchers in collaboration with two school counselors at Bole Preparatory School Guidance and Counseling Center. The program consisted of 10 weekly sessions, each of which took two hours in duration. Consistent with the ACT transdiagnostic theoretical model, the treatment program was not designed to target a specific psychological disorder or disorders, rather it was designed for students with challenges in academic adjustment and motivation and a range of mental health problems. The focus of the intervention was on assisting participants in practicing acceptance of unhelpful experiences, thoughts, and urges and promoting engagement in meaningful actions toward their valued life directions. The same treatment was delivered for the waiting list group after that which was delivered for treatment group was completed and data was collected from participants in both groups for the second time.

### Data Analysis Procedures

For the data analysis, SPSS was used. All the data collected at the baseline (pre-test) and end line (post-test) were properly scored, coded, and entered in the SPSS. The hypothesis was tested using a repeated measure ANOVA model in which baseline was taken before intervention and a post intervention assessment was done both for the intervention (treatment) group (ACT) and the waitlist (control) group (WLG) participants. In the preliminary analysis, the normality of the data was tested using Shapiro-Wilk tests and the homogeneity of variances was checked with Box's M test. The presence of outliers was also checked. Group equivalence at baseline was assessed for all measures (both process and Outcome) using Univariate analysis of Variance. Results showed no main effects of ACT vs WLG on any of the measures. So, after checking that the ACT and WLG were more or less similar in demography and baseline measures, then repeated measure ANOVA was conducted to examine the effect of the intervention on each process and outcome measure after the intervention was completed for the ACT group.

## Results

### Socio-demographic Data

A total of forty-five (45) students participated in the research. All were female and grade eleven (11) students at Bole Preparatory school. Table 3 and Table 4 show some socio-demographic features of the participants. As it can be seen from the table the mean age of the participants was 16.84 which lies in the traditional age of grade eleven students (16-18 years). The mean EGSLCE result of the participants was 2.71 which fits with the inclusion criteria (3.00 and below). As the intervention was started in the second semester of the academic year, their first semester results were also recorded. As we can see in Table 3, the average result was 64.13 that was an average result. These results were recorded as they might be causes and/or results of academic motivation.



**Table 3***Participants Characteristics: Age, EGSLCE Result and Grade 11 First Semester Results.*

Intervention Group and Waiting List Group		Age	EGSLCE* Result	Grade 11 first semester Average Result
WLG	Mean	16.53	2.73	62.04
	N	17	17	17
	SD	.72	.17	5.09
ACT Group	Mean	17.04	2.69	65.40
	N	28	28	28
	SD	1.26	.18	4.68
Total	Mean	16.84	2.71	64.13
	N	45	45	45
	SD	1.11	.18	5.05

*Note.* \* EGSLCE: Ethiopian General School Leaving Certificate Examination

The participants' living condition and their family's average monthly income was also assessed. As it can be seen from Table 4, almost all students live with their family, and they are from an average income family (classified based on the new income tax rating of the Ethiopian Revenue and Customs Authority). These components were captured as they might be sources of distress, demand adjustment, and become an issue in life satisfaction.

**Table 4***Participants Characteristics: Monthly Income and Living Condition.*

Group	Monthly average income of the family			Currently Living with	
	Below Average Income	Average Income	Above Average Income	Living with Family	Living alone
WLG	3	9	5	17	0
ACT Group	7	12	9	27	1
Total	10	21	14	44	1

### Preliminary Analysis/ Baseline Comparison

The tests for checking normality of the data (Shapiro-Wilk), the homogeneity of variances (Box's M) and the presence of outliers (Univariate Z Score) indicated that there was no statistical assumption violated and outliers detected. A Shapiro-Wilk's test ( $p > 0.05$ ) had showed that the data were approximately normally distributed. So, both the WLG and ACT are comparable with respect to age ( $p = 0.139$ ), place where majority of life spent ( $p = 0.423$ ), Ethiopian General School Leaving Certificate Examination (EGSLCE) result ( $p = 0.497$ ), Grade 11 first semester average result ( $p = 0.290$ ), monthly average income of the family ( $p = 0.840$ ) and whom they were living with ( $p = 0.442$ ).

Group equivalence at baseline was assessed for all measures (both process and Outcome) using Univariate analysis of Variance. Results showed no main effects of ACT Group versus WLG on any of the measures. Table 5 shows the Levene statistics of all

measures. The comparison of baseline scores of ACT and WLG conditions found no significant difference for all measures except PWI which was found Skewed (Levene statistics found to be  $p < 0.05$ ). For this measure, the data set was transformed using Log10 arithmetic and was adjusted ( $p=0.443$ ).

### Post-Treatment Data/ Process and Outcome Measures

After checking that the ACT Group and WLG were similar in demography and baseline measures, then ANOVA was conducted to examine the effect of the intervention on each process and outcome measure after the intervention was completed for the ACT Group.

**Table 5**

*P-Values of Process and Outcome Measures.*

Measures	Levene Statistics	
	p value	Transformed p value
<b>Process Measures</b>		
<b>Psychological Flexibility</b>		
Acceptance and Action (AAQ- II)	0.849	
Valued Living (VLQ)	0.441	
Cognitive Fusion (CFQ 13)	0.384	
Mindfulness Attention and awareness (MAAS)	0.080	
<b>Outcome Measures</b>		
<b>Life Satisfaction</b>		
Satisfaction with Life and Personal Well-being (PWI)	0.001	0.443
<b>School Adjustment</b>		
Emotional Adjustment (AISS_E)	0.332	
Social Adjustment (AISS_S)	0.395	
Educational Adjustment (AISS_Edu.)	0.102	
Total Adjustment (AISS_Total)	0.636	
<b>Achievement Motivation</b>		
Deo and Mohan Achievement Motivation (DMAM)	0.726	

Note: p value greater than 0.05 shows that the data is normal.

### Intervention Effect Analysis

The repeated measure univariate ANOVA results for psychological flexibility, academic motivation, adjustment, and life satisfaction have been merged and presented in one table (Table 6) and tests of between-subjects effects have been summarized in another table (Table 7).

After delivering the 10-weeks long standard ACT group intervention, the psychological flexibility process measure results of those in the ACT group had been improved significantly as measured by acceptance and commitment, valued living, and cognitive fusion questionnaire [AAQ II-  $F(1,43) = 27, p=0.000, \eta^2= 0.39$ ; VLQ-  $F(1,43) = 9.8, p=0.003, \eta^2=0.19$ ; CFQ-  $F(1,43) = 13.9, p=0.001, \eta^2=0.24$ ). However, there was no significant difference observed in mindful and awareness measure/MAAS ( $F(1, 43) = 2.1, p=0.159, \eta^2=0.05$ ).

The cut-off point for AAQ II is 24-28 which indicates average psychological inflexibility or distress. Any result above that point shows greater level of distress or lower level of flexibility and any result below those show lower distress and higher psychological flexibility. As it is shown in Table 5, the mean score in the post treatment was 16.89 which tells that there was a higher psychological flexibility in the ACT group.

The mean score for the CFQ 13 measure after intervention had become 40.00 for the ACT while 51.00 for the WLG (cut off point being 44-45). This shows that participants in the ACT group had a higher level of cognitive defusion after the intervention while those in the WLG still had higher level of cognitive fusion.

VLQ results are considered average when the scores are 84-85. A result above this cut-off point indicates higher level of valued living. In this study, the mean scores in the post test were found to be 90.11 and 84.00 for participants in ACT and WLG respectively. Though a statistical significance was observed between the two groups, there was an improvement in VLQ results in both ACT and WLG.

As stated above, the MAAS results are not significant between participants in ACT and WLG (smaller F-value (2.1, F-critical was 4.07) and higher p value (0.159) were obtained). The cut-off point for MAAS is 50-55 and any score above that indicates higher mindful, attention, and awareness.

**Table 6**

*Effect of ACT Intervention on Student's Psychological Flexibility, Academic Motivation, Adjustment and Life satisfaction*

Measures	p-value ( $\alpha$ )		ACT Intervention		WLG	
	Pre	Post	Pre	Post	Pre	Post
			M (SD)	M (SD)	M (SD)	M (SD)
<b>Psychological Flexibility</b>						
Acceptance and Action (AAQ- II)	0.561	0.000	25.68 (8.36)	16.89 (6.43)	27.18 (8.23)	27.59 (6.85)
Valued Living (VLQ)	0.307	0.003	69.11 (27.24)	90.11 (6.34)	76.47 (6.91)	84.00 (6.36)
Cognitive Fusion (CFQ 13)	0.222	0.001	50.89 (8.85)	40.00 (8.34)	54.47 (10.27)	51.00 (11.42)
Mindfulness Attention and awareness (MAAS)	0.095	0.159	45.71 (11.43)	61.25 (9.61)	50.76 (5.31)	57.00 (9.71)
<b>Life Satisfaction</b>						
Satisfaction with Life and Personal Well-being (PWI)	0.017	0.000	63.75 (10.83)	79.18 (6.57)	55.18 (11.80)	62.47 (17.62)
<b>Adjustment &amp; Motivation</b>						
Emotional Adjustment (AISS_E)	0.304	0.000	12.82 (2.75)	4.07 (2.94)	11.88 (3.22)	9.94 (3.34)

Measures	p-value ( $\alpha$ )		ACT Intervention		WLG	
	Pre	Post	Pre	Post	Pre	Post
			M (SD)	M (SD)	M (SD)	M (SD)
Social Adjustment (AISS_S)	0.748	0.000	4.39 (0.60)	3.86 (2.24)	4.35 (0.79)	10.12 (3.86)
Educational Adjustment (AISS_ Edu.)	0.161	0.000	9.71 (1.78)	4.04 (2.59)	10.76 (3.17)	10.00 (4.24)
Total Adjustment (AISS_Total) Deo and Mohan	0.834	0.000	32.11 (3.99)	2.21 (0.57)	32.47 (7.58)	4.24 (0.75)
Achievement Motivation (DMAM)	0.852	0.000	2.17 (1.09)	62.36 (25.76)	2.11 (0.99)	34.11 (20.74)

Satisfaction with life as a whole and personal wellbeing was measured using PWI. The result showed a significant change in life satisfaction between the two groups [ $F(1, 43) = 20.7, p = 0.000, \eta^2 = 0.33$ ]. The cut-off value set by the PWI; International Wellbeing Group (2006) is 70-80. Any value above that indicates higher personal wellbeing and life satisfaction. The means in the post test were 79.18 and 62.47 with a standard deviation of 17.62 and 6.57 for the ACT and WLG respectively.

**Table 7**

*Tests of Between-Subjects Effects: Treatment with ACT being the Independent Variable.*

Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared ( $\eta^2$ )	Noncent. Parameter	Observed Power <sup>a</sup>
AAQ-II	1210.004	1	1210.004	27.901	.000	.394	27.901	.999
CFQ 13	1279.911	1	1279.911	13.884	.001	.244	13.884	.954
VLQ	394.521	1	394.521	9.791	.003	.185	9.791	.864
MAAS	191.061	1	191.061	2.051	.159	.046	2.051	.288
PWI	2952.858	1	2952.858	20.705	.000	.325	20.705	.994
AISS-Emo	369.843	1	369.843	38.164	.000	.476	38.164	1.000
AISS-Soc	414.585	1	414.585	47.769	.000	.526	47.769	1.000
AISS-Edu	334.951	1	334.951	30.615	.000	.422	30.615	1.000
AISS_Total	42.994	1	42.994	102.495	.000	.709	102.495	1.000
DMAM	8440.096	1	8440.096	14.631	.000	.254	14.631	.962

Academic adjustment was measured using AISS tool. It measures emotional, social and educational adjustments separately and overall adjustment as a sum of all the three. Compared to the WLG, participants in the ACT group had shown a significant improvement in their emotional, social, educational and overall adjustments after the intervention with significance value of  $F(1, 43) = 38.2, p = 0.000, \eta^2 = 0.48$ ;  $F(1, 43) = 48.8, p = 0.000, \eta^2 = 0.53$ ;  $F(1, 43) = 30.6, p = 0.000, \eta^2 = 0.42$  and  $F(1, 43) = 38.2, p = 0.000, \eta^2 = 0.71$  respectively.

The achievement motivation of the students had also improved after receiving ACT intervention. A highly significant difference was observed between the ACT and WLG [ $F(1.43) = 14.6, p = 0.000, \eta^2 = 0.25$ ].

## Discussion

This study examined the effect of a 10-weeks long ACT group intervention on therapeutic processes (acceptance, cognitive defusion, mindfulness, committed action and valued living) and outcomes (academic adjustment, motivation, and life satisfaction) of female preparatory school students. It was hypothesized that there will be a significant improvement in academic motivation, adjustment, life satisfaction and all psychological flexibility processes among students after receiving ACT group intervention. All those hypothesized changes were observed among the ACT participants compared to the WLG participants except for the mindfulness measure. Both groups showed an increase in the MAAS results and there was a difference between ACT and WLG, but it was not statistically significant.

### Effect of ACT on Psychological Flexibility

The findings of this study indicate that the participants in the ACT group scored lower psychological inflexibility/ higher psychological flexibility after receiving ACT intervention. The effect size is large in most of the measures like acceptance and action ( $\eta^2 = 0.390$ ), valued living ( $\eta^2 = 0.19$ ) and cognitive defusion ( $\eta^2 = 0.24$ ) as presented in Table 6. The changes observed in the ACT processes had a great implication for students' success and wellbeing. Empirical evidences show that ACT interventions had a great impact in reducing the level of stress and promoting well-being at work and school (Pull, 2009; Wersebe, Lieb, Meyer, Hofer & Gloster, 2018), promoting the mental health and increasing school engagement of students (Gregoire, Lachance, Bouffard & Dionne, 2018), reducing procrastination among students and influencing factors affecting depression, stress, and burnout in school settings (Keshavarz & Yousefi, 2019).

In this study a significant difference was not observed in mindfulness, awareness and attention measures among the two groups. Though the result shows that some improvements were seen in mindfulness, awareness and attention after treatment, it was underpowered with regards to showing a significant difference between ACT and WLG (Observed power <50%, Table 6). However, in a study conducted by Takahashia, et al. (2020) a significant reduction in hyperactivity or inattention was observed after intervention with universal ACT among students. Many other research findings had also supported that (Edwards, et al., 2019; Keshavarz & Yousefi, 2019; Katajavuori, Vehkalahti & Asikainen, 2021).

### Effect of ACT on Academic Motivation

In this study, achievement motivation was boosted among students after intervention with ACT. This will have a great impact in the success of the students. Achievement motivation of students is the 21st century society's matter of great concern (Esteki, Vatan, Panah & Kouchakentzar, 2020). These days, the motivation for learning has become a top issue in education, and its absence represents a decrease of quality in learning. It is believed that unless the students have high level of achievement motivation it will be difficult on the

part of the society to develop. As Legault et al. (2006) mentions, lack of motivation is one of the major academic challenges that is plaguing today's adolescents and youth at schools. They said, "Year after year, for reasons yet to be understood, numerous high school students find themselves in a state in which they do not have the desire to carry out the academic tasks required of them."

With no doubt, such lack of motivation in academics leads to frustration and discontentment which compromise students' productivity in schools and well-being in life.

In this study, a promising result was obtained regarding achievement motivation. The students had a very low achievement motivation at the beginning of the study ( $M=2.17$ ;  $SD=1.09$ ). But after receiving the ACT intervention for 10 weeks, it had rose to above average motivation ( $M= 62.36$ ;  $SD= 25.76$ ) some participant even scoring very high achievement motivation. There was a significant difference in effect ( $p =0.000$ ,  $\eta^2=0.25$ ). These results are consistent with those reported by others. Sadat, Ramezan and Yarali (2018) reported that acceptance and commitment therapy increased achievement motivation and quality of life at school among high school students. Other findings had empirically evidenced that mindfulness based cognitive therapies like ACT are effective methods to enhance achievement motivation (Keshavarz & Yousefi, 2019; Esteki et al., 2020).

Research had revealed that tendency to endeavor for success or reach a desired end is manifested through effort to succeed. And effort, the main indicator of motivation, is only deployed if the student believes in her/his ability to succeed. As Ryan and Deci (2002) states that when a given academic task is related to the student's value in life, the student gets it very important and get motivated. Tarabashkina (2011) also stresses the importance of value for academic success.

ACT provides students to identify their values, set goals and work towards them in a committed way. This helps them to give meanings to what they do at school and outside. Dotson (2016) had clearly demonstrated that setting goals keeps students motivated and focused on desired outcomes and provides a clear direction for success. According to him, goals that are established in a SMART (specific, measurable, attainable, relevant, and time sensitive) way, supported with a specific plan of action, and thoroughly monitored produce high motivation and leads to the attainment of desired outcomes at school and in life. ACT, as an intervention, helps us achieve this all through its process elements, so that the students' achievement motivation can be improved.

### **Effect of ACT on Adjustment**

Adjustment is a critical factor that helps students to succeed and flourish at school and beyond. This study had indicated that ACT increases students emotional, social, educational, and overall adjustments significantly. This finding is in harmony with many other findings (Azadeh et al., 2016; Keshavarz & Yousefi, 2019; Takahashia et al., 2020).

Adjustment determines students' psychological wellbeing and academic achievement. Sarkar and Banik (2017) boldly stated academic achievement as an outcome of student's adjustment to various changes. Adjustment to school includes many dimensions. Aggrawal (2004) mentions that the adjustment of adolescents very much depends on the fulfilment of their significant specific needs that consist of physical needs, emotional needs, social needs, intellectual needs, moral needs, and vocational needs. Sinha and Singha (1984), in their

manual for adjustment inventory, classified the major adjustment areas that students need at school. These are emotional adjustment, social adjustment, and educational adjustment.

Research found that there is a significant difference in emotional, social, and educational adjustment among successful and unsuccessful students (Chauhan, 2013). In the current study, it was found that the emotional adjustment of participating students had been significantly improved after receiving ACT intervention ( $F(1, 43) = 38.2, p = 0.000, \eta^2 = 0.48$ ). Students face many stressors in school life. Proper emotional adjustment is crucial for their success. Research has revealed that maladjustment may lead students to drugs, alcohol, sexual activity, non-assertiveness, which is induced by fear, running from home, compromising values, loss of meaning in life and committing suicide (Sarkar & Banik, 2017; Kasayira, Kapandambira & Hungwe, 2007). So, this study brought us an alternative intervention, ACT, to help students adjust to life changes and challenges in a productive and healthy way.

Social adjustment is another dimension investigated in this research. The finding shows that there is a significant improvement in the social adjustment of students after ACT group intervention ( $F(1, 43) = 48.8, p = 0.000, \eta^2 = 0.53$ ). As human beings are social beings, relationship has a crucial place in the life of human beings. Harvard's 75-years long study had revealed that the secret to living a happy life is meaningful relationships and connections (Waldinger, 2016). The research emphasized that healthy relationships not only do serve as an indicator for overall life satisfaction, but they also are an indicator for academic and career satisfaction. The researchers say that having a meaningful connection to the type of work or subjects someone is doing or studying is more important than achieving traditional success. So, students' social adjustment that helps them to fit within the social groups both inside and outside of the school is important for their academic achievement, wellbeing, and life satisfaction.

Academic (educational) adjustment is an important element in students' life. Intervention with ACT had pointed out a significant effect in boosting the academic/educational adjustment of students so that they can achieve their academic goals ( $F(1, 43) = 30.6, p = 0.000, \eta^2 = 0.42$ ). The findings showed there was a significant difference between participants in ACT and WLG in the educational adjustment. In other words, ACT group therapy significantly led to improve the educational adjustment of the students.

The sum of scores in all these three dimensions of adjustment led us to the overall adjustment of the student. The results obtained indicated that ACT group therapy had significantly improved the overall adjustment of the students ( $F(1, 43) = 38.2, p = 0.000, \eta^2 = 0.71$ ).

### **Effect of ACT on Life satisfaction**

Life satisfaction is also an important element in student's life, which is most of the time overlooked or got less attention. In this study, life satisfaction was one of the outcome measures assessed. As, it is stated in the result part of this paper, both the ACT and WLG participants had lower level of life satisfaction and wellbeing as measured by PWI pre intervention. But the ACT group had shown a progress to an average mean score of personal wellbeing and life satisfaction ( $M = 79.19$ ). A significant difference was observed when ACT group was compared with the WLG [ $F(1,43) = 13.9, p = 0.001$ ]. This result is similar with the

findings of Gloster, Walder, Levin, Twohig, and Karekia (2020). Based on their meta-analysis of about 20 studies, they found that ACT intervention had brought a small to average improvement in the quality of students and other individuals' life. Katajavuori et al (2021) also found out ACT intervention had improved students' academic functioning and wellbeing or life satisfaction. This has a great implication for the success of students. In another study, it was indicated that students who had high life satisfaction had greater academic motivation, confidence and achievement and spend more time studying compared to students with low life satisfaction levels (Antaramian, 2017). Other studies pointed out that middle and high school students who have higher life satisfaction had showed positive attitudes toward their education, teachers, and school (Gilman & Huebner, 2006; OECD, 2017; Banos Baena-Extremera & Ortiz-Camacho, 2019). Earlier to them, Gilman and Huebner (2003) stressed that good educators should strive to improve the quality of their students' current life and rise their life satisfaction as highly as they care about their students' future life. So, this study had showed us one approach, ACT group intervention, that can be used to boost students' life satisfaction and help them flourish beyond their challenges and changes they face in life which intern improves academic motivation and performance.

## Conclusions and Recommendations

The aim of this study was to investigate the effectiveness of acceptance and commitment therapy (ACT) group intervention on academic achievement motivation, adjustment, and life satisfaction among female high school students. The findings of this study have indicated that intervention with ACT in a school context had brought a significant improvement in psychological flexibility, academic motivation, adjustment (emotional, social, and educational/academic) and life satisfaction among students who received the intervention. The findings show that the effectiveness of ACT on all the outcome measures was statistically significant. The participants expressed what really mattered to them (goals and values) that give meaning to their lives. It also helped them to engage in actions which allow them to achieve their goals and live their values more fully. Through the exercises, activities and processes of ACT, the students identified what was holding them back from achieving their goals and designed effective strategies to combat them. It also helped them to develop, their ability to be attentive and aware of what is happening inside and outside of themselves, while introducing an attitude of acceptance. By doing that their achievement motivation, adjustment and life satisfaction were boosted. Based on the findings of this study, it can be concluded that ACT group intervention can help to boost female high school students' achievement motivation, adjustment, and satisfaction in life.

The findings of this study have provided support about the effectiveness of ACT as a school-based, group-format intervention for female high school students. So, the investigator recommends trainers, teachers, school counselors, and therapists use this intervention method to improve personal, social, and educational adjustments, academic motivations, and life satisfaction of female high school students. As there is a shortage of school counselors, trained teachers and psychologists can use school-based group ACT as a universal prevention program to address lack of motivation and adjustment problems. Its transdiagnostic nature and applicability benefits the majority of students who are hard to address on one-to-one counseling approach.



Schools need to work on the psychological flexibility of students through curricular and co-curricular activities so that the students' academic motivation will be positively affected.

Further research is recommended to see whether ACT has the same effect on male students and students at lower grades as some evidence suggest that women and men use different coping strategies which may impact how effective treatments are for people of different genders. So, it would be good to examine gender differences in response to ACT.

### **Ethical Considerations**

The study was approved by Addis Ababa University's College of Education and Behavioral Studies School of Psychology. Informed written consent was taken from each participant. Several measures were taken to protect the privacy of participants.

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