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Association between Self-Compassion, Mindfulness, Difficulties Emotion Regulation and Behaviors Eating in Adolescence

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Abstract

This research aims to explore the association between self-compassion, mindfulness, difficulties emotion regulation and eating behavior disorders (emotional eating, Avoidant Restrictive Food Intake Disorder (ARFID), Bulimia Nervosa (BN), Anorexia Nervosa (AN)) in Palestinian adolescents. A quantitative methodology was adopted in achieving research's aims, where a questionnaire composed from four scales; the Child and Adolescent Mindfulness Measure (CAMM), the Self-Compassion Scale-Short Form (SCS-SF), the Difficulties in Emotion Regulation Scale - Short Form (DERS-SF) and the Dutch Eating Behavior Questionnaire (DEBQ) was distributed online among a sample of (200) adolescent students from the Arabs of the interior of Palestine. The results showed that there is a statistically significant prevalence of low mindfulness, lack of self-compassion, difficulty regulating emotions, and problematic eating behavior disorders among adolescent students from the Arabs of the interior of Palestine. The research also showed that that there is a statistically significant negative impact of overall mindfulness and overall self-compassion on eating behavior disorders of adolescent students of Arabs of the interior of Palestine. The research recommended the necessity for developing intervention programs to improve mindfulness and self-compassion for the individual in the early stages of childhood.

Keywords: Self-Compassion, Mindfulness, Difficulties Emotion Regulation, Eating Behavior Disorders, Emotional Eating, Avoidant Restrictive Food Intake Disorder (ARFID), Bulimia Nervosa (BN), Anorexia Nervosa (AN), Adolescence.

*** Introduction**

Adolescence's emotions are characterized by intensity, fluctuation, contradiction, and the lack of the ability to control and express emotions, and these emotions are very similar to the reactions of the child, except that the difference between them is in the type of stimuli, where the Adolescence revolts to criticize him or deny him some privileges, or to interfere in his personal affairs, and despite the emergence of some symptoms of maladjustment as a result of this, but the emotional behavior of the adolescent is improving year after year, and with the approaching adulthood, we find that the emotional development of the adolescent is heading towards stability (El-Desouki, 2003). Disturbed eating behaviors, such as emotional eating, have been identified as growth pathways for obesity (Eichen, 2017). Emotional eating has been defined as eating food in response to an emotional state rather than hunger, eating as a form of emotional comfort, or eating when negative feelings are regulated in unhealthy ways (Evers, 2010). Emotional eating is often associated with consuming more energy-dense foods in response to negative emotions, and thus, it is a behavior that can contribute to obesity, not only among adults but also among adolescents (Aparicio, 2016).

Self-compassion mindfulness, difficulties emotion regulation is a psychological concept that was neglected, but with the beginning of the twentieth century it began to gain the attention of researchers, although it is still a concept that includes a great deal of confusion and a lot of controversy and discussion around it due to the multiplicity of terms close to it. The study of self-compassion mindfulness, difficulties emotion regulation are of great importance for adolescents in that it is one of the positive variables that belong to positive psychology and has positive effects in all areas of psychological, personal, social and academic compatibility. As adolescence is considered one of the most dangerous stages that a person passes through, within its various developmental phases that are characterized by constant renewal and progress in the lanes of steadfastness towards

rational human perfection. The danger in this stage is the physical, physiological, mental and emotional changes, in which adolescents are exposed to multiple internal and external conflicts that lead them to many psychological disorders.

Some studies have shown that self-compassion can also play an important role in adopting healthy behaviors, thus reducing engagement in disruptive eating behaviors and preventing negative weight-related outcomes (body dissatisfaction, physical shame. Based on previous studies, it may enable Self-compassion is a more adaptive emotion regulation strategy, such as less self-critical thoughts and avoidance of less cognitive behavior (which often leads to disturbed eating behaviors and body dissatisfaction), increased acceptance and thus facilitates healthy weight management. Despite the growing interest in this field, to date, no studies have been conducted on the relationship between elf-compassion mindfulness, difficulties emotion. Regulation and disordered eating behaviors among adolescents in Palestine. Therefore, the problem with the research is lies to uncover association between self-compassion mindfulness, difficulties emotion regulation and behaviors eating in Adolescence. The importance of this research comes from the significance of behaviors eating in Adolescence, which represent a worldwide issue, and an important area of research. Adolescence represents an important transition period from childhood, and its dependence, to adulthood and the independence it requires. Therefore, conducting such a research regarding this topic is expected to have a high positive reflections and significance.

*** Literature review**

*** Behaviors Eating in Adolescence**

Adolescence is the stage of development characterized by high stress, increased risk behaviors, and increased mental disorders in the adolescent, and it is assumed that poor emotion regulation may contribute to the negative image of the adolescent, and the beginning of the emergence of mental disorders during adolescence (Gilbert, 2012). The adolescent's emotions are characterized by intensity, fluctuation, contradiction, and the lack of the ability to control and express emotions, and these emotions are very similar to the reactions of the child, except that the difference between them is in the type of stimuli, where the teenager revolts to criticize him or deny him some privileges, or to interfere in his affairs (El-Desouki, 2003).

Adolescence is one of the topics that have received great attention from researchers; some of them consider it a normal developmental stage, while some consider it an extraordinary stage. The important thing in all of this is that the adolescent is heading towards perfection and maturity, which may sometimes be punctuated by difficulties that lead him to search for sound solutions, sometimes he may reach it and at other times he does not reach then the difficulties escalate to turn into problems (Gouveia, Canavarro, & Moreira, 2018). Most individuals who develop an eating disorder - estimated at around 90% - are female. Eating disorders are usually associated with young women and adolescents, and these disorders also affect older and middle-aged women, although until relatively recently we did not know much about the prevalence of these disorders among that older age group, and eating disorders are divided into three types. They are anorexia nervosa, bulimia nervosa, and chaotic eating disorder (Harvard Medical School, 2012).

The results of the study of Filaire et al. (2011) indicated that individuals with eating disorders have dissatisfaction with their body image, and have low levels of emotional intelligence compared to the group of normal individuals (without eating disorders), especially in aspects such as (relationships). Personality, adaptation, stress management, and general mood), as the results showed the role of emotion or sentiment in disturbed eating trends, and this result is important for the prevention of eating disorders (Filaire, 2011).

Emotional eating is considered an indicator of a disorder of the emotion regulation system (Micanti, 2017). For instance, to manage internal states and emotions, especially negative and stressful ones, adolescents may use non-adaptive and easily accessible coping mechanisms, such as emotional eating (O'Reilly, 2015). The inability to self-regulate eating behavior has been explained by various theoretical models, including escape theory (that is, eating behavior to escape negative self-awareness or self-evaluations; (Heatherton & Baumeister, 1991), affects models of regulation (that is, eating behavior to reduce regulation or compensation On lack of appropriate reinforcement experiences; (Wedig & Nock, 2010), models of disorganization (i.e. eating behavior as a result of poor recognition of signals of physical hunger and satiety; (Dalen, 2010).

There are two internal psychological sources that may contribute to the regulation of adaptive emotions: alertness and self-compassion. Autocratic awakening has been conceptualized as an internal ability to cultivate awareness of present-day experiences with a non-judgmental attitude (Brown et al., 2007).

*** Self-compassion and eating behaviour**

The relationship between self-compassion and eating behavior is an important and promising area of research with clinical implications for people with difficulties with eating, body image, or weight. Of concern is that one in ten children is obese by the age of 5 and one in five children by the age of 11 Support in primary care focuses on behavioral interventions, including psychological education; exercise, monitor diet, and weight; Setting goals and solving problems. Nevertheless, the effectiveness of primary care interventions is often neglected after twelve months. Significantly, a systematic review of weight and eating management interventions that included self-compassion reported encouraging results (Rahimi-Ardabili, 2018).

Breines and Chen (2012) found that people who were more self-compassionate reported greater motivation to make changes after experiencing major personal failure (Breines & Chen, 2012). Gilbert (2010) believes that empathy stems from a need for social connection and human development; especially the ability to bond and bond, which is linked to feelings of contentment, safety, and connection. Self-compassion is a practice that nourishes the self and can alter neurophysiology and the immune system. For example, facilitating emotion regulation and reducing the threat system (Gilbert P. , 2010).

Braun, Park, and Gorin (2016) conducted a systematic study of the relationship between self-compassion and disordered eating, and concluded that self-compassion may affect eating behavior in four ways (Braun T. D., 2016): 1) Self-compassion may directly affect eating behavior, for example by reducing eating behaviors. Unhelpful such as eating too restrictive or binge eating (Kelly, 2014); 2) Self-compassion may prevent the risk factors associated with unhelpful eating, such as negative body image. When people live in a culture where their bodies are monitored and valued before others, they internalize the message that their value depends on the perspective of others. It can also contribute to unhelpful eating behavior and feelings of shame when

people fail to meet beauty standards; 3) Self-compassion may influence the relationship between risk factor and unhelpful eating behavior, for example weakening the positive association between negative body image and disturbed eating; 4) Self-compassion may be indirectly related to food intake via different pathways between a predictor and an outcome variable, through which risk factors operate (de Carvalho Barreto, 2018).

Several studies of the relationship between self-compassion and eating behavior showed that people who were more self-compassionate also reported less unhelpful eating behavior, including highly restrictive eating and binge eating (Kelly, 2014). Kelly et al (2016) highlighted the effect of trait and self-compassion on body image and eating behavior among undergraduate students, by asking them to complete daily procedures over a period of seven days. On days when the participants were more self-compassionate, they also reported greater body satisfaction and ate more intuitively, with less self-control. Likewise, a woman's average level of self-compassion throughout the week predicted her average level of body satisfaction, eating control, and intuitive eating; pointing out that although these traits have fluctuated, they have been relatively stable over time. Kelly et al (2016) suggested that self-compassion can help people reduce subsequent emotional urges to overeat or deficiency and tolerate distress caused by negative body image.

Liss and Erchull (2015) explored self-compassion as a protective factor against negative body image and negative eating attitudes (Liss, 2015). Participants who were more self-compassionate reported that observing their own bodies was less in response to the social stress of being thin; and reduce shyness of the body and negative attitudes of eating. Further results indicated that women who were more self-compassionate and who observed their own bodies and watched them later experienced less shyness and negative eating trends, compared to women who were less self-compassionate.

Homan and Sirois (2017) found a positive association between self-compassion and physical health; By perceived low stress (the degree to which participants found their lives unpredictable, uncontrollable, and confusing) and greater participation in positive health behaviors, such as discussing health concerns with professionals and in regular exercise. This area of research is critically

important to understanding the myriad of complex factors that influence and sustain the emotional and physical distress associated with eating and weight difficulties. Research indicates that self-compassion is a protective factor that can facilitate the ability to regulate feelings and self-behavior (Homan, 2017).

In general, people who reported more self-compassion also reported more engaging in health-promoting behaviors, possibly because they provide the same care for themselves as they do to others (Terry and Leary, 2011). Terry and Leary (2011) hypothesized that people who are more self-compassionate may respond to their health needs and organize themselves better; By setting more flexible and realistic goals that are directly related to health, goals aimed at promoting well-being and happiness, rather than a sense of self-worth in response to external social pressures. The psychological component of the inhibition effect suggests that restricted eating has negative views of themselves especially with regard to food and eating; Self-judgment, self-criticism and unpleasant self-awareness (Adams & Leary, 2007). Self-compassion has been shown to help people forgive themselves (kindness to oneself), increase personal awareness (alertness) and see their mistakes in the larger human context without being overwhelmed by (shared humanity) (Adams & Leary, 2007).

*** Mindfulness and eating disorders**

Mindfulness-based stress reduction (MBSR) is the most popular mindfulness training program (Neff & Germer, 2013). It is an experimental program that includes a formal and informal approach to group mindfulness exercises and meditation over the course of eight weekly sessions and a half-day retreat (Kabat Zain, 1982). Mindfulness-based cognitive therapy (MBCT), a form of MBSR, is also widespread and includes educational and experiential psychological areas, such as body examination, meditation, self-acceptance, mindful eating, and the control paradox (Segal et al., 2002). In Meta-analyzes, both methods showed positive physical and psychological outcomes in diverse populations (Hoffman, Sawyer, Witt, & Oh, 2010), as well as increased self-compassion (Birnie, Speca, & Carlson, 2010).

Alberts et al. (2012) examined the effect of an eight-week MBCT intervention on body mass index (BMI), interest in body image, dichotomous thinking, food cravings,

and eating behavior. They introduced a mindfulness-based eating program based on mindfulness-based cognitive therapy (MBCT) by Segal et al. (2002) of a non-clinical sample of adult women. These individuals who participated in the program reported significantly lower levels of physical dissatisfaction, dichotomous thinking, and food cravings, emotional eating, and out-eating, compared to the waitlist control group. The results showed a greater increase in mental alertness for the trait after completion of the program. There was a decrease in BMI after the test. These results indicate that increasing mental awareness and acceptance of inner experiences related to eating, regulation of emotions, and self-acceptance may be significantly beneficial in reducing disordered eating behaviors (Lisa Paylo Meyer, 2016).

Woolhouse, Knowles and Kraft (2012) examined the efficacy of a group therapy of cognitive-behavioral alertness for ten weeks in a sample of women with binge eating problems. They found important reductions in binge eating and dieting, as well as significant increases in body satisfaction (Woolhouse, Knowles, & Crafti, 2012). The authors also interviewed some of the participants after completion of treatment, and specifically assessed the changes that the women attribute to the side of wakefulness from the intervention. The women identified the practice of mindful eating as the most beneficial aspect of the program, indicating that they believe it helps reduce the severity and frequency of binge eating. Participants also shared that practicing mindfulness positively affected their overall quality of life and their ability to regulate emotions (Lisa Paylo Meyer, 2016).

*** Emotion regulation and eating disorders**

In many studies, researchers have begun to explore the relationship between emotion regulation and eating disorders (Aldao & Nolen-Hoeksema, 2010). Current etiological models of eating disorders highlight the influence of emotion regulation difficulties as a cross-diagnostic factor (Treasure, 2012). Previous research has shown difficulties in testing and discriminating emotions in AN (Brockmeyer, Pfeiffer, Herzog, & Friederich, 2012), BN (Harrison et al., 2010), and BED (Zeeck, Stelzer, Linster, Joos, & Hartmann, 2011), also as impaired capacities for regulation Sentiments in unrest ((Svaldi, Caffier, & Tuschen-Caffier, 2010); (Brockmeyer et al., 2012.

Harrison et al. (2010), found that individuals with eating disorders reported greater deficits in emotional arousal, understanding, awareness, acceptance of feelings, and the ability to act in desired ways regardless of emotional state, as evidenced by difficulties in emotion regulation scale (DERS; Gratz & Roemer, 2004), compared to a healthy sample. More specifically, Wildes et al., (2010) studied the regulation of emotions in individuals with anorexia nervosa. They found that those with anorexia nervosa engaged in emotional avoidance at similar levels to individuals with social phobia and isolationist personality disorder. These avoidance strategies have also been found in individuals who endorse the symptoms of bulimia (Wildes, Ringham, & Marcus, 2010).

Lavender et al. (2009) studied the effect of thought suppression on episodes of over-purging in a sample of undergraduate males and females. And they found that the non-adaptive impulse-regulation strategy accounted for a large amount of variation in bulimia symptoms, even after controlling for BMI (Lavender, Jardin, & Anderson, 2009).

There is a consistent correlation between binge-eating episodes and negative emotions in BN and BED (Haedt-Matt & Keel, 2011). Overeating may be seen as an attempt to escape awareness of unpleasant states, thus increasing the craving for food (Alpers & Tuschen-Caffier, 2001). Nonetheless, individuals may engage in binge-eating episodes to try to reduce the severity of emotional states (Deaver, Miltenberger, Smyth, Meidinger, & Crosby, 2003), which often lead to purging behaviors and gluttony (Evers, Stok, & de Ridder, 2010). Therefore, most of the previous research on emotion regulation and eating disorders has neglected the distinction between the subtypes of eating disorders (Brockmeyer T. S., 2014). A common explanation for disordered eating behaviors is that individuals with these disorders have difficulty regulating emotions productively and use maladaptive strategies to offset unpopular emotions. They may lack access to emotion regulation strategies (Aldao & Nolen-Hoeksema, 2010) or they may use maladaptive strategies (Racine, 2013).

*** Research Method**

The research adopted the analytical descriptive method based on the nature of the research and the information to be obtained from the opinions of the participants in the sample of the research, and through the questions that the research tries to

answer. This method is the best scientific research methods suitable for this kind of studies, which dealt with the association between self-compassion mindfulness, difficulties emotion regulation and behaviors eating in Adolescence, which used descriptive research methodology and because it is considered one of the best approaches to achieve the objectives of the research.

*** Research tool**

The researcher developed a questionnaire as a main tool for the research by referring to a set of literature and previous studies to measure the variables arising from the hypotheses and model of the research and to answer their questions. In the current research also, quantitative data will be collected from the Arab students from the Arabs of the interior of Palestine; Islam Druze and Christians. Variables that are the Association between self-compassion, mindfulness, difficulties emotion regulation and behaviors eating in Adolescence will be quantified and then it will be analyzed (Fagerberg, 2014). All studies examined self-compassion mindfulness, difficulties in emotion regulation as a predictive variable and eating behavior disorders as dependent variable. Accordingly, those predictive variables and the dependent variable will be measured in this research as shown below:-

1- Mindfulness: Mindfulness skills (i.e., adolescents' present-moment awareness and their nonjudgmental, nonavoidant responses to their thoughts and feelings) were assessed using the Child and Adolescent Mindfulness Measure (CAMM), which is one of the few available and reliable tools for measuring mindfulness in adolescents (Cunha et al. 2013; Greco et al. 2011).

2- Self-compassion: The Self-Compassion Scale-Short Form (SCS-SF) adopted by (Castilho et al. 2015; Raes et al. 2011) was used to assess the adolescents' levels of self-compassion (i.e., the ability to hold one's feelings of suffering with a sense of warmth, connection and concern).

3- Difficulties in emotion regulation: The Difficulties in Emotion Regulation Scale - Short Form (DERS-SF) adopted by (Kaufman et al. 2015; Moreira & Canavarro 2016) was used to assess the adolescents' different difficulties in regulating emotions during times of stress.

4- Eating Behavior Disorders: Adolescents' eating behavior disorders (i.e., the desire to eat or starve under different emotional states, such as irritated, depressed,

lonely, frightened, and disappointed) was assessed using the Dutch Eating Behavior Questionnaire (DEBQ) used by different researchers including (van Strien et al. 1986; Viana & Sinde 2003).

*** Population and Sample**

The research community consists of Arab students and students from the Arabs of the interior of Palestine; Islam Druze, and Christians. Due to the impossibility of covering the entire research population, in terms of cost and time consumption, a simple random representative sample was selected from the research population consisting of 200 students, where 200 questionnaires were distributed, and was fully recovered by 100%. The questionnaires were distributed online via google forms for the target sample because it is considered the easiest, fastest and highest coverage data collection technique (Cooper et al., 2006).

*** Results and Discussions**

*** Sample Socio-demographic Characteristics**

After the questionnaires were distributed and filled out by the 200 randomly selected students, a descriptive statistical analysis was performed by SPSS to determine the social and demographic characteristics of the sample members. Table 1 illustrates the characteristics of the study participants.

Table 1: Socio-demographic characteristics of the sample

Variable	Categories	Frequency	Percentage%
Gender	Male	61	30.5%
	Female	139	69.5%
Religion	Muslim	110	55.0%
	Christian	29	14.5%
	Druze	61	30.5%
Age	10-13 years	9	4.5%
	13-15 years	31	15.5%
	15-18 years	106	53.0%
	18-22 years	54	27.0%
Grade	Middle stage (7th to 10th grades)	72	36.0%
	Secondary stage (11th to 12th grades)	89	44.5%
	University	39	19.5%
Living place	With family	179	89.5%
	Student Residence	13	6.5%
	In house-alone	6	3.0%
	In house-with friend	2	1.0%

The Prevalence of Mindfulness, Self-compassion, Emotion regulation difficulties and eating behaviour disorders among Adolescent Students

The analysis of the obtained data was carried out using the independent T-test on SPSS to obtain the descriptive statistical prevalence of mindfulness, self-compassion, emotion regulation difficulties and eating behavior disorders among the sample of adolescent students. Firstly, a total score for each of the four scales in the questionnaire; the Child and Adolescent Mindfulness Measure (CAMM), the Self-Compassion Scale-Short Form (SCS-

SF), the Difficulties in Emotion Regulation Scale - Short Form (DERS-SF) and the Dutch Eating Behavior Questionnaire (DEBQ) was calculated by summing the responses according to the scoring criteria and cut-off scores indicated in the methodology chapter. Then, the independent sample t-test, also called the two-sample t-test was implemented to determine whether there is a statistically significant difference between the means of the two groups in each variable. Table 2 below shows Mindfulness, Self-compassion, Emotion regulation difficulties and eating behavior disorders scores of the sample and the result of independent sample T test.

Table 2: Mindfulness, Self-compassion, Emotion regulation difficulties and eating behavior disorders tendency in the total sample

Variable	Frequency	Percentage	Mean ± SD	T value	Sig.
Mindfulness					
Low mindfulness (<25)	140	70.0%	17.2786 ± 4.02	21.230	0.000
High mindfulness (≥25)	60	30.0%	28.4333 ± 3.11		
Self-compassion					
High self-compassion (≥30)	81	40.5%	35.9160± 4.91	18.404	0.000
Low self-compassion (<30)	119	59.5%	22.5556± 5.23		
Emotion regulation difficulties					
High emotion regulation difficulties (≥45)	196	98.0%	66.1684 ± 10.9	5.528	0.000
low emotion regulation difficulties (<45)	4	2.0%	35.7500 ± 11.8		
Eating Behavior Disorders					
High level emotion eating (≥32)	194	97.0%	49.1856 ± 8.30	6.416	0.000
Low level emotion eating (<32)	6	3.0%	27.1667± 7.23		

Based on the foregoing, it can be said that there is a statistically significant prevalence of low mindfulness, lack of self-compassion, difficulty regulating emotions, and problematic eating behavior disorders among adolescent students from the Arabs of the interior of Palestine. This can be explained by the fact that the adolescence stage represents a critical period of individual's development, characterized by low emotional adjustment, overlapping and violent feelings in adolescents, difficulty controlling emotions and enhancing autonomy from parental eating habits. These characteristics could explain some of the observed findings about the prevalence of problematic eating behavior disorders in adolescents, which has been supported by previous studies such as (Favieri et al., 2021).

*** Hypotheses Testing Results**

The Effect of overall mindfulness on eating behaviour disorders among adolescents (Hypothesis One)

The correlation between overall mindfulness (IV) and eating behavior disorders (DV), indicated as the first hypothesis of this research: H1: There is a negative association between overall mindfulness and eating behavior disorders among adolescents, was tested through Pearson correlation and simple linear regression analysis, where Table 3 represents the resulted model

summary for this regression and correlation test:

Table 3: Linear regression's model summary for the first hypothesis

(R)	(R^2)	Adjusted (R^2)	F	DF		α	β	T	Sig
-0.748	0.560	0.558	252.174	Regression	1	0.00	-0.822	-15.88	0.00
				Residual	198				
				Total	199				

From the above Table 3, the model summary and overall fit statistics indicates that there is a statistically significant negative impact of overall mindfulness on eating behavior disorders of adolescent students of Arabs of the interior of Palestine, where the coefficient of Pearson correlation R (-0.748) at ($\alpha \leq 0.05$). The coefficient of determination R^2 amounted to (0.560), this means that (56%) of the negative changes in the eating behavior of students are because of their low mindfulness characteristic. Moreover, the degree of impact (β) for the impact of overall mindfulness on eating behavior disorders of adolescent students is (-0.822). This means that a decrease in the students' mindfulness level by one step increases their exposure to eating behavior disorders by (0.822). The significance of this effect is the value of the calculated (F) which reached (252.174) and is significant at the level of (α =0.0.00 <0.05), hence, the first hypothesis was accepted.

The Effect of overall levels of self-compassion on eating behaviour disorders among adolescents (Hypothesis Two)

The correlation between self-compassion (IV) and eating behavior disorders (DV), indicated as the second hypothesis of this research: *H2: There is a negative association between overall levels of self-compassion and eating behavior disorders among adolescents*, was tested through Pearson correlation and simple linear regression analysis, where Table 4 represents the resulted model summary for this regression and correlation test:

Table 4: Linear regression's model summary for the second hypothesis

(R)	(R^2)	Adjusted (R^2)	F	DF		α	β	T	Sig
-0.600	0.360	0.357	111.259	Regression	1	0.00	-0.607	-10.55	0.00
				Residual	198				
				Total	199				

From the above Table 4, the model summary and overall fit statistics indicates that there is a statistically significant negative impact of overall self-compassion on eating behavior disorders of adolescent students of Arabs of the interior of Palestine, where the coefficient of Pearson correlation R (-0.600) at ($\alpha \leq 0.05$). The coefficient of determination R^2 amounted to (0.360), this means that (36%) of the negative changes in the eating behavior of students are because of their low self-compassion

characteristic. Moreover, the degree of impact (β) for the impact of overall levels of self-compassion on eating behavior disorders of adolescent students is (-0.607). This means that a decrease in the students' self-compassion level by one step increases their exposure and practice of eating behavior disorders by (0.607). The significance of this effect is the value of the calculated (F) which reached (111.259) and is significant at the level of (α =0.0.00 <0.05), hence, the second hypothesis was accepted.

The Effect of overall mindfulness on difficulties in emotion regulation among adolescents (Hypothesis Three)

The correlation between mindfulness (IV) and difficulties in emotion regulation (DV), indicated as the third hypothesis of this research: H3: There is a negative association between overall mindfulness and difficulties in emotion regulation scores among adolescents, was tested through Pearson correlation and simple linear regression analysis, where Table 5 represents the resulted model summary for this regression and correlation test:

Table 5: Linear regression's model summary for the third hypothesis

(R)	(R^2)	Adjusted (R^2)	F	DF		α	β	T	Sig
-0.689	0.474	0.472	178.763	Regression	1	0.00	-0.629	-12.64	0.00
				Residual	198				
				Total	199				

From the above Table 5, the model summary and overall fit statistics indicates that there is a statistically significant negative impact of overall mindfulness on emotion regulation difficulties of adolescent students of Arabs of the interior of Palestine, where the coefficient of Pearson correlation R (-0.689) at (α≤ 0.05). The coefficient of determination R^2 amounted to (0.474), this means that (47.4%) of the students' difficulties in regulating their emotions are because of their low mindfulness level. Moreover, the degree of impact (β) for the impact of overall mindfulness level on difficulties in emotion regulation among adolescents' students is (-0.703). This means that a decrease in the students' mindfulness level by one step increases their difficulties in regulating emotions by (0.703). The significance of this effect is the value of the calculated (F) which reached (178.763) and is significant at the level of (α =0.0.00 <0.05), hence, the third hypothesis was accepted.

The Effect of overall levels of self-compassion on difficulties in emotion regulation among adolescents (Hypothesis Four)

The correlation between self-compassion (IV) and difficulties in emotion regulation (DV), indicated as the fourth hypothesis of this

research: H4: There is a negative association between overall levels of self-compassion and difficulties in emotion regulation scores among adolescents, was tested through Pearson correlation and simple linear regression analysis, where Table 6 represents the resulted model summary for this regression and correlation test:

Table 6: Linear regression's model summary for the fourth hypothesis

(R)	(R^2)	Adjusted (R^2)	F	DF		α	β	T	Sig
- 0.668	0.447	0.444	159.809	Regression	1	0.00	-0.629	- 12.64	0.00
				Residual	198				
				Total	199				

From the above Table 6, the model summary and overall fit statistics indicates that there is a statistically significant negative impact of overall self-compassion on emotion regulation difficulties of adolescent students of Arabs of the interior of Palestine, where the coefficient of Pearson correlation R (-0.668) at ($\alpha \leq 0.05$). The coefficient of determination R^2 amounted to (0.447), this means that (44.7%) of the students' difficulties in regulating their emotions are because of their low self-compassion level. Moreover, the degree of impact (β) for the impact of overall self-compassion level on difficulties in emotion regulation among adolescents' students is (-0.629). This means that a decrease in the students' self-compassion level by one step increases their difficulties in regulating emotions by (0.629). The significance of this effect is the value of the calculated (F) which reached (159.809) and is significant at the level of (α =0.0.00 <0.05), hence, the fourth hypothesis was accepted.

The Mediation effect of emotion regulation difficulties on the relation between the overall mindfulness and eating behavior disorders (Hypothesis five)

The mediation effect of emotion regulation difficulties on the relation between the overall mindfulness (IV) and eating behavior disorders (DV), indicated as the fifth hypothesis of this research: H5: The negative association between overall mindfulness and eating behavior disorders is mediated by difficulties in emotion regulation among adolescents, was tested through simple linear regression analysis using Baron and Kenny' strategy. Table 7 below represents the resulted model summary for this regression testing the mediation:

Table 7: Linear regression's model summary for the fifth hypothesis

Model No.	DV	IVs	β	T	R^2	F	Sig.
1.	Eating behavior disorders	Mindfulness	-0.822	-15.88*	0.558	252.174*	0.000
2.	Emotion regulation difficulties	Mindfulness	-0.629	-12.64*	0.474	178.763*	0.000
3.	Eating behavior disorders	Emotion regulation difficulties	0.914	22.668*	0.722	513.822*	0.000

*** Significant at 0.05**

From the above Table 7, the model no.1 summary and overall fit statistics indicates that there is a statistically significant negative

impact of overall mindfulness (IV) on eating behavior disorders (DV) of adolescent students of Arabs of the interior of Palestine. Moreover, the mediator (emotion regulation difficulties) was secondly regressed on the independent variable (mindfulness) and the resulted regression model's no.2 summary and overall fit statistics indicate that there is a statistically significant negative impact of mindfulness on emotion regulation difficulties. Finally, the third regression was made between the dependent variable (eating behavior disorders) and the mediator (emotion regulation difficulties) by assuming it as independent variable. The model's no.3 summary and overall fit statistics shown in Table 7 indicates that there is a statistically significant positive impact of emotion regulation difficulties on eating behavior disorders, where the coefficient of determination R^2 amounted to (0.914) and was significant at ($\alpha \leq$ 0.05), which means that (0.914) of the increase in eating behavior disorders is because of emotion regulation difficulties. Based on the results of the three previous models, the three conditions for Baron and Kenny's mediation method have been fulfilled and hence, the fifth hypothesis was accepted.

The Mediation effect of emotion regulation difficulties on the relation between the overall levels of self-compassion and eating behavior disorders (Hypothesis six)

The mediation effect of emotion regulation difficulties on the relation between the overall levels of self-compassion (IV) and eating behavior disorders (DV), indicated as the sixth hypothesis of this research: H6: The negative association between overall levels of self-compassion and eating behavior disorders is mediated by difficulties in emotion regulation among adolescent, was tested through simple linear regression analysis using Baron and Kenny' strategy. Table 8 below represents the resulted model summary for this regression testing the mediation:

Table 8: Linear regression's model summary for the sixth hypothesis

Model No.	DV	IVs	β	T	R^2	F	Sig.
1.	Eating behavior disorders	Self-compassion	-0.607	-10.55*	0.360	111.259*	0.000
2.	Emotion regulation difficulties	Self-compassion	-0.629	-12.64*	0.447	159.809*	0.000
3.	Eating behavior disorders	Emotion regulation difficulties	0.914	22.668*	0.722	513.822*	0.000

*** Significant at 0.05**

From the above Table 8, the model no.1 summary and overall fit statistics indicates that there is a statistically significant negative impact of overall self-compassion (IV) on eating behavior disorders (DV) of adolescent students of Arabs of the interior of Palestine. Moreover,

the mediator (emotion regulation difficulties) was secondly regressed on the independent variable (self-compassion) and the resulted regression model's no.2 summary and overall fit statistics indicate that there is a statistically significant negative impact of self-compassion on emotion regulation difficulties. Finally, the third regression was made between the dependent variable (eating behavior disorders) and the mediator (emotion regulation difficulties) by assuming it as independent variable. The model's no.3 summary and overall fit statistics shown in Table 8 indicates that there is a statistically significant positive impact of emotion regulation difficulties on eating behavior disorders, where the coefficient of determination R^2 amounted to (0.914) and was significant at ($\alpha \leq$ 0.05), which means that (0.914) of the increase in eating behavior disorders is because of emotion regulation difficulties. Based on the results of the three previous models, the three conditions for Baron and Kenny's mediation method have been fulfilled and hence, the sixth hypothesis was accepted.

*** Difficulties in Emotion regulation prevalence across Gender (Hypothesis Seven)**

Statistical difference between students' tendency to have difficulties with emotion regulation according to gender was analyzed by the Chi-square test, using SPSS, to check whether the students' gender had an effect on the extent to which they had difficulties with emotion regulation:

Table 9: Difficulties in Emotion regulation prevalence according to gender groups

Variables	Males N=61 n (%)	Females N=139 n (%)	Chi-square value (X^2)	*p*-value
High emotion regulation difficulties (≥45)	60 (98.4%)	136 (97.8%)	0.058	0.809
Low emotion regulation difficulties (<45)	1 (1.6%)	3 (2.2%)		

N: number of students; where $p < 0.05$ is considered significance

The results in Table 9 showed that there are no statistical differences in the students' prevalence to encounter difficulties in regulating emotion according to gender, where the value of chi-square ($\boldsymbol{X^2}$) reached (0.058) and this value is not statistically significant ($\alpha = 0.809 >$ 0.05). Therefore, the seventh hypothesis was rejected.

*** Eating behavior disorders across Gender (Hypothesis Eight)**

Statistical difference between students' tendency to have eating behavior disorders according to gender was analyzed by the Chi-square test, using SPSS, to check

whether the students' gender had an effect on the extent to which they have eating behavior disorders:

Table 10: Eating behavior disorders prevalence according to gender groups

Variables	Males N=61 n (%)	Females N=139 n (%)	Chi-square value (X^2)	*p*-value
High level emotion eating (≥32)	59 (96.7%)	135 (97.1%)	0.023	0.878
Low level emotion eating (<32)	2 (3.3%)	4 (2.9%)		

N: number of students; where $p < 0.05$ is considered significance

The results in Table 10 showed that there are no statistical differences in the students' prevalence to have eating behavior disorders according to gender, where the value of chi-square ($\boldsymbol{X^2}$) reached (0.023) and this value is not statistically significant ($\alpha = 0.878 > 0.05$). Therefore, the eighth hypothesis was rejected.

*** Conclusion**

The topic of the effect of mindfulness, self-compassion, and emotional regulation on eating disorders began to gain attention in the literature, and it is believed by previous researches and studies that the factor affecting eating disorder symptoms is emotional regulation, which is a mediating factor affected by mindfulness and self-compassion. In light of the scarcity of research that explains the relationships between those variables in the Palestinian community, this research intended to explore the association between self-compassion, mindfulness, difficulties emotion regulation and eating behavior disorders in Palestinian adolescents. At this stage of the inquiry, the study examined the assumed presence of relationships between mindfulness, self-compassion, difficulties in emotion regulation, and eating behavior disorders (emotional eating, Avoidant Restrictive Food Intake Disorder (ARFID), Bulimia Nervosa (BN), Anorexia Nervosa (AN)) in adolescents.

The analysed questionnaires' results showed that there is a statistically significant prevalence of low mindfulness, lack of self-compassion, difficulty regulating emotions, and problematic eating behavior disorders among adolescent students from the Arabs of the interior of Palestine. This is because the adolescence stage represents a critical period of individual's development, characterized by low emotional adjustment, overlapping and violent feelings in adolescents, difficulty controlling emotions and enhancing autonomy from parental eating habits. The research also revealed that there is a statistically significant negative impact of overall mindfulness on eating behavior disorders of adolescent students of Arabs of the interior of Palestine at $p < 0.05$, where the absence of

mindfulness leads to significantly higher levels of people's physical dissatisfaction, dichotomous thinking, food cravings or starving and eating behavior disorders (AN, BN or ARFID) compared to those with high levels of mindfulness.

This research benefits social researchers and psychologists, as a better understanding of the mechanisms underlying the relationship between mindfulness with self-compassion, difficulties in emotion regulation and adolescent eating behavior allows for the development of more tailored interventions for youth and adolescents with disordered eating behaviors. The research also provides some indications that interventions based on promoting self-compassion and mindful eating behavior may start early in children. Furthermore, this study gives a broad understanding of all the factors that influence the creation of mindful eating behavior and self-compassion, which contributes to advancing the prevention agenda in promoting mental and physical health. In light of the previous discussions and conclusions, This research recommends the need to work on designing a special course and curricula for adolescence that are in-depth and specialized in some cognitive, psychological and emotional problems and ways to treat them. It also recommends providing a guide on adolescence based on recent studies and distributing it to families, centers, clinics, secondary schools and other places where adolescents are present, in order to facilitate the process of dealing with adolescents and help them develop their personalities and overcome their emotional and psychological problems and issues.

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