# Psychometric Properties of the Five-Facet Mindfulness Questionnaire among Egyptian university students

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| ARTICLE INFO | ABSTRACT |
|---|---|

**Purpose** Mindfulness represents individuals' opinions, feelings, and objective observations. The present study aimed at examining the factor structure and reliability of the Five-Facet Mindfulness Questionnaire for the Egyptian culture and investigating the relationship between mindfulness and thought fusion beliefs. **Methodology** This descriptive, cross-sectional, and psychometric study was conducted on 507 university students (241 males, 266 females) from Assuit City, Egypt, by using the convenience sampling method. The Principal Axis Factoring Approach to Exploratory Factor Analysis (EFA), the confirmatory factor analysis, concurrent validity and the relationship between mindfulness and depression were conducted to examine the validity of the Five-Facet Mindfulness Questionnaire. The criterion validity was verified using correlations on measurement scales like Beck Depression Inventory-II (BDI-II), Thought Fusion Scale (TFS), Cognitive Emotional Regulation Strategies Scale (CERSS), and (4) the Cognitive Self-Consciousness Scale (CSCS) to calculate the reliability and validity of the Five-Facet Mindfulness Questionnaire. Cronbach's alpha and Composite reliability were also employed to quantify the results. Statistical analysis was performed with SPSS version 23 and LISREL 8.8.

**Findings** The results of the EFA suggested five factors for this scale labelled as "observing" "describing" "acting with awareness" "non-judging of inner experience" and "non-reactivity to inner experience". The reliability of this scale was good, and the correlation between mindfulness and depression was negative and significant in the following two facets: (acting with awareness, non-judging of inner experience). **Implications for Research and Practice** The results of the study also showed that the dimensions of observation and description were positively correlated with thought fusion beliefs, while the dimensions of non-judgment and acting with awareness were negatively associated with thought fusion beliefs.

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## Introduction

Long-term mental and physical health problems affect a large number of societies, placing a burden on health care systems, representing a very large cost to society, and causing immeasurable suffering (Alsubaie et al., 2017). The tradition of mindfulness dates back 2,500 years ago (Lang, 2017), and the inception of the concept of mindfulness was associated with spiritual movements rather than the mainstream of psychology (Cardaciotto et al., 2008). Mindfulness has ancient roots in Buddhist philosophy, which may be understood to be uncommon and largely mysterious among Western scholars (Meng et al., 2020). However, in the past decades, its practice has become widely accepted in the West as a secular practice unrelated to religious rituals (Droutman et al., 2018).

Mindfulness was introduced to Western thought by the social psychologist Langer, who focused on organizational contexts, and by Kabat-Zinn (2003) who wrote about the application of mindfulness to clinical samples (Lang, 2017). Over the past 25 years, studies have examined Langer's theory of mindfulness through the use of research approaches designed to elicit attentive treatment (Pearson et al., 2015). Mindfulness has been extensively studied recently, with the number of studies increasing from 80 studies in 1990 to more than 600 in 2006. A peer-reviewed scientific journal entitled *Mindfulness* has now been devoted to this concept and its development (Barajas & Garra, 2014). Clinical psychology has witnessed a recent breakthrough in interest in exercises and practices of mindfulness as a psychological and social intervention (Feldman et al., 2007). In recent years, clinicians and psychologists have focused more on mindfulness as a component of mental health (Bostanov et al., 2018). The popularity of the concept of mindfulness among researchers and clinicians has become worthy of attention and study because mindfulness is a property of awareness (Barajas & Garra, 2014).

Mindfulness refers to an individual's way of directing himself to the present moment (Calvete et al., 2017), and to a state of complete focus on what is happening in the present. It also refers to awareness of current experiences or experiences without interaction or judgment (Meng et al., 2020). Mindfulness includes individuals' opinions, feelings, and objective observations (Murray et al., 2017). Paying attention to instantaneous current experience requires attention regulation, highlighted in most definitions of mindfulness (Bishop et al., 2004; Shapiro et al., 2006). Another attribute that adds to attention is the current real-time experience through momentary observation or awareness (Tapper, 2017). Definitions of mindfulness generally confirm that it involves maintaining awareness of an individual's current experience, rather than distracting him by past or future thoughts, or engaging in avoiding his experience. It also includes maintaining a position not to judge experience (Thompson & Waltz, 2007). Most mindfulness practices include practices in which individuals try to keep their attention focused on their current experiences in particular, for example focusing on their breathing, or turning attention to the back to breathing wherever they roam, and this practice includes many different cognitive processes, ranging from monitoring the focus of attention to distraction (Lutz et al., 2008).

Bishop et al. (2004) proposed a notion of mindfulness as a two-component construct: (1) self-regulation of attention in order to be preserved in the instant experience, and (2 orientation towards one's experiences at the present moment, a component distinguished by curiosity, openness, and acceptance (Ahmadi et al., 2014; Calvete et al., 2017). Although this two-dimensional perception of mindfulness prevails in the psychological field, much theoretical and empirical literature has assumed additional components for mindfulness (Calvete et al., 2017; Shapiro & Carlson, 2009; Shapiro et al., 2006). Frequent mindfulness causes a third component to emerge from the center or lack of attention. Hayes-Skelton et al. (2012) has defined it as seeing thoughts and feelings as objective events in the min (Tapper, 2017). A large bulk of empirical research has suggested voluntary exposure as a component of mindfulness.

Other studies Arch and Craske (2006); Baer et al. (2004) have found that mindfulness consists of distinct and multiple abilities or skills that include: (a) the ability to pay attention and note experiences in the present, (b) the ability to move from judgmental experience, and (c) the ability to accept positive and negative experiences without avoiding or interacting. Baer (2009); Baer et al. (2004), after examining mindfulness using exploratory factor analysis of a large number of items of mindfulness questionnaires, concluded that it contains five facets: (1) observation, which consists of observing internal and external experiences, (2) description, i.e. use of words to describe external experiences, (3) acting with awareness, or coming to the present moment, (4) non-judging of inner experiences, or not judging thoughts and feelings, and (5) non-reactivity to inner experience, or the ability to allow feelings and thoughts to come and go, without trying to control them. Despite this, the researcher believes that debate and research on mindfulness are still continuing to determine the components of mindfulness; some have discussed considering that acceptance and non-judgment are not components, but rather one of its benefits or results (Quaglia et al., 2015).

The term 'mindfulness' has been used in various forms to refer to: (a) quality of features, (b) a broad path consisting of a spiritual approach and lifestyle, (c) a therapeutic approach, (d) cognitive processes (Isbel & Summers, 2017). Mindfulness has been defined as awareness that arises by paying attention to experience now in a non-judgmental way (Bishop et al., 2004; Kabat-Zinn, 2003, 2011; Kabat-Zinn & Hanh, 2009). The main idea contained in the definition introduced by Kabat-Zinn (2003) is taking a non-judgmental attitude toward one's experiences (feelings, thoughts, physical feelings), and this component relates to what researchers call "acceptance." Shapiro and Carlson (2009) define it as consciousness that arises through intentional, attentive presence in an open, receptive, and distinctive way, of anything that may arise at the present moment. Bostanov et al. (2018) define it as an external, internal, and non-judgmental reaction to feelings of attention and awareness.

The reason for the increased interest in mindfulness by researchers and workers in the field of psychological counseling lies in the many benefits that are gained from practicing it in various areas of human functioning: emotional, cognitive, and behavioral (Jankowski & Holas, 2014). The benefits of mindfulness in improving psychological well-being and

reducing symptoms are worthy of documentation (Duan, 2016). K. W. Brown and Ryan (2003) maintain that mindfulness not only facilitates behavioral control, but also enhances behavioral regulation that improves well-being. Similarly, Barajas and Garra (2014) state that the awareness that mindfulness facilitates more adaptive and flexible responses and helps reduce impulsive reactions. Mindfulness-based interventions (MBIs) refer to a set of interventions such as: (1) mindfulness-based stress reduction (MBSR), (2) mindfulness-based cognitive therapy (MBCT), (3) acceptance and commitment therapy (ACT), and (4) acceptance-based behavioral therapy (ABBT). The MBSR method is believed to improve current awareness of thoughts, feelings, and sensations through focused attention and open observation, and generate acceptance and non-judgmental attitudes towards current experience (Hofmann et al., 2010), and these interventions are aimed at reducing the relationship between negative thoughts and stressful emotions through awareness and acceptance (Greco et al., 2011). Many of these interventions have been shown to be effective in reducing depressive symptoms and promoting mental health (Raphiphatthana et al., 2016).

Despite the literature that has rapidly increased the effectiveness of mindfulness-based interventions in the past thirty years, this increase has been accompanied by an evolution in measuring mindfulness through the tools of self-report (Belzer et al., 2013). According to Baer (2007), there is an urgent need for reliable tools for measuring mindfulness. Many of the tools are specifically designed to attract the multiple components of this concept, despite the potential problems of assessing mindfulness with self-report measures. The list of instruments that have been developed to measure mindfulness is long. It includes, for example, the Freiburg Mindfulness Inventory (Buchheld et al., 2008), the Mindful Attention Awareness Scale (K. W. Brown & Ryan, 2003), the Kentucky Inventory of Mindfulness Skills(Baer et al., 2004), the Five-Facet Mindfulness Questionnaire (Baer et al., 2006), the Toronto Mindfulness Scale (Lau et al., 2006), the Cognitive and Affective Mindfulness Scale (Feldman et al., 2007), the Philadelphia Mindfulness Scale (Cardaciotto et al., 2008), the Southampton Mindfulness Questionnaire (Chadwick et al., 2008), the Child and Adolescent Mindfulness Measure (Greco & Hayes, 2008), the Five-Facet Mindfulness Questionnaire-SF (Bohlmeijer et al., 2011), the Mindfulness Process Questionnaire (Li et al., 2016), and the Interpersonal Mindfulness Scale (Erus & Tekel, 2020)

One of these widely used tool is the Five-Facet Mindfulness Questionnaire (FFMQ), which measures mindfulness as a multi-building consisting of five integrated skills: (1) observation of internal and external experiences such as sensations, perceptions, emotions, sounds, and smells; (2) describing inner experiences and expressing them in words; (3) acting with awareness, rather than acting mechanically or automatically while attention is focused on something else; (4) taking a non-judgmental and non-evaluative attitude towards inner experiences; and (5) non-reactivity to inner experience, and allowing thoughts and feelings to come and go (Baer et al., 2006; Baer et al., 2008). The original version of the FFMQ Baer et al. (2006) has been translated into most languages and its reliability and validity in these societies have been verified on children, adolescents, youths and adults, and on clinical and non-clinical samples.

For example, among the societies in which the questionnaire was applied after translating it and establishing its reliability and validity, included the German society (Veehof et al., 2011), the Swedish society (Lilja et al., 2011), the Spanish society(Cebolla et al., 2012), the Chinese society(Meng et al., 2020), the Brazilian society(Barros et al., 2015), the Polish society (Radoń, 2014), the French society (Adam et al., 2015), the Australian Society (Taylor & Millear, 2016), and the Dutch Society (Truijens et al., 2016). The results of the exploratory factor analysis and the confirmatory factor analysis in most of these studies established the reliability and validity of the Five-Facet Mindfulness Questionnaire. However, the results of some of these studies showed that observation was not an important part of the structure of mindfulness (Lilja et al., 2011; Taylor & Millear, 2016).

Hence, the main objective of this study was to verify the efficiency of the Five-Facet Mindfulness Scale on a sample of Egyptian university students and check the relationship between mindfulness and depression. This question branches into following sub-questions:

1- What is the significance of the factor analysis validity of the Five-Facet Mindfulness Scale for Egyptian university students?
2- What is the significance of the concurrent validity of the Five-Facet Mindfulness Scale for Egyptian university students?
**3-** What is the significance of the reliability of the Five-Facet Mindfulness Scale for Egyptian university students?

## Method

- *Sample description*

The sample consisted of 507 university students from Assuit University, Assiut, Egypt (241 males and 266 females; Mean age =19.7, SD =1.3). All the participants were undergraduates from the Faculty of Education. Their participation was completely voluntary without any reward for their participation. The sample was selected based on the convenience sampling method (Buchheld et al., 2008).

- *Data collection methodology*

The data was collected from April 11, 2018, to May 24, 2018 after obtaining approval from the Institutional Life Research Ethics Committee (CKU-19-01-0101). In total, 390 university students who had expressed their intention to participate in the study signed written consent forms and were given instructions on how to participate. The participants were also explained the purpose and confidentiality of the study, the anonymity of the research, the academic purposes of data collection, and their ability to refuse to participate or withdraw from the study without any disadvantages. The time required to complete the survey was 15-25 minutes and small rewards were provided for the participants. Of the 390 surveys, 305 were returned and 207 of the responses were used for the final data analysis.

The data was analysed in three stages by using SPSS 22.0, AMOS 22, and LISREL 8.8. In the first stage, the properties of the variables were examined using descriptive statistics and internal consistency. Cronbach's alpha was used to determine estimated internal

consistency and was considered satisfactory at α =.70 or above (Bland & Altman, 1997). Confirmatory factor analyses (CFA) were conducted to test the equivalence of the measurement model for construct validity of scales. In the second stage, the Stepwise Multiple Linear Regression analysis was conducted on responses to questions one and two in the current research. In the third stage, structural educational model (SEM) analyses were conducted on responses to question three in the current research. In the first step, maximum likelihood estimation in AMOS 22 was used to conduct all CFAs and the structural educational model.

Model fit was evaluated using the following indices: Chi-Square goodness-of-fit (χ2), Comparative Fit Index (CFI > .90 acceptable, and > 0.95 desirable; Tucker-Lewis Index (TLI > .90 acceptable, and > 0.95 desirable; as recommended by Hu and Bentler (1999). Root Mean Square Error of Approximation (RMSEA < .05 good fit; < .08 acceptable fit; < .10 poor fit; T. A. Brown (2015); Kabat-Zinn and Hanh (2009)using a 90% confidence interval, and Standardized Root Mean Square Residual (SRMR < .05 good fit, and < 0.08 acceptable fit; as recommended by Hu and Bentler (1999). A chi-square difference test was used to compare the fit of the single-factor structure with the three-factor structure. A statistically significant difference (p < .05) indicates better fit of the model with smaller chi-square value.

- *Instrument and research procedure*

### i.Five Facet Mindfulness Questionnaire:

The Five-Facet Mindfulness Questionnaire (FFMQ) is a multidimensional measure that has been developed and validated on various samples of the English community (Baer et al., 2006). This questionnaire consists of 39 items, distributed by the results of exploratory factor analysis (EFA) and confirmatory factor analysis. An affirmative factor has five factors: (1) observation, which refers to one's ability to observe his perceptions, feelings, and thoughts and adherence to them, (2) description, that refers to one's ability to name his feelings, sensations, and express them with words, (3) acting with awareness, that refers to attention to activities, and the ability to avoid distraction, (4) non-judging of inner experience, that indicates one's ability to not make judgments about his experiences, feelings, and thoughts, and finally (5) non-reactivity to inner experience, which indicates one's ability to perceive and observe his feelings, emotions, and thoughts without issuing a reaction to them.

The authors of the current study explored the reliability and validity of this questionnaire. The results indicated that all facets of mindfulness are positively linked to each other, as the results of the exploratory factor analysis and confirmatory factor analysis confirmed the five-factor model. This scale has been translated into many languages of the world, and its reliability and viability have been verified in several societies. Besides, Meng et al. (2020) state that this diffusion is due to its good practical psychometric properties.

### ii.Beck Depression Inventory-II:

The BDI-II is a 13-item self-report instrument used to measure the presence and severity of depression. Each question assesses specific symptoms of depression, and participants are instructed to circle the response that best describes the way they have been feeling over the past two weeks. A coefficient alpha of .92 was reported for the BDI in a patient sample, and scores on the BDI were positively correlated with clinician-administered assessments of depression (Beck et al., 1996).

### iii. Cognitive Emotion Regulation Strategies Scale:

The Cognitive Emotion Regulation Strategies Scale (CERSS) was developed by Garnefski et al. (2001). The subscales of the (CERSS) include nine strategies: self-blame, acceptance, focus on thought/rumination, positive refocusing, refocusing on planning, positive reappraisal, putting into perspective, catastrophizing, and finally blaming others (Garnefski et al., 2001). In 2015 the author of the current research had confirmed the reliability of this scale for Egyptian university students (Alkholy, 2015). The reliability coefficient was calculated using the Alpha Cronbach equation, and the value of the reliability coefficient (0.83) was 0.01. The results of the confirmatory factor analysis showed that all the values of the conformity indicators were acceptable, which indicates the confirmatory validity of this scale.

### iv. Thought Fusion Scale:

This scale was developed by Adrian Wells and Christine (1999) It aims to reveal the beliefs of individuals who do not distinguish between thought-action fusion (TAF) and thought-event fusion (TEF). For example, (If I have thoughts of harming myself, I will end up causing it), (If I think I am in danger, then that means I am really in danger). These beliefs are implicit manifestations of the sincerity of authoritarian intellectual mental experience, and people with disturbances essentially act as if these ideas were correct (Adrian Wells, 2005; A. Wells et al., 2001). This scale consists of 14 items that fall under three factors: (1) Thought-Action Fusion (TAF), (2) Thought-Event Fusion (TEF), and (3) Thought-Object fusion (TOF).

### v. Cognitive Self-Consciousness Scale:

The Cognitive Self-Consciousness Scale (CSCS) is a 41-item self-report questionnaire designed to measure the tendency of persons to be aware of and to monitor their thinking. This scale was developed from the 14-item CSC-E, which consisted of all original items from the CSC subscale of the Meta-Cognitions Questionnaire (Cardaciotto et al., 2008) in addition to seven items added by Janeck et al. (2003). Cohen (2007) reported an internal consistency estimate (Alpha Cronbach) of .84 for the CSC-E. Cohen (2007) added to the scale to test if a person's tendency to think about his thinking was effortful and volitional or automatic and reflexive. This scale consists of two factors: (1) automatic cognitive self-consciousness, which included 20 items, and (2) volitional cognitive self-consciousness, which included 21 items.

## Results

In this section, we will present the main results of the study based on the suggested question, "What is the significance of the factor analysis validity of the Five-Facet Mindfulness Scale on Egyptian university students?" To answer this question, exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were used to verify the structure of the Five-Facet Mindfulness Questionnaire (FFMQ). The construct validity of the FFMQ was verified using EFA and CFA as follows:

- *Exploratory factor analysis (EFA):*

To ensure the validity of the Five-Facet Mindfulness Questionnaire, an exploratory factor analysis was conducted using the Principal Axis Factoring method on a non-clinical sample of university students (N = 207) according to the following steps:

o **Step 1:** Verifying the suitability of the data for EFA: The value of the Bartlett's test statistic (McClendon, 2002) was 2103 ($df$ = 741), which is statistically significant at $p$ = 0.01, while the Kaiser-Meyer-Olkin (KMO) test (Flury, 1988) statistic value was 0.814, which is greater than 0.8.

o **Step 2**: Determining the number of extracted factors: Five factors were excluded from which the questionnaire items were loaded, and Li et al. (2016) criterion was used to determine the number of extracted factors, as five factors were found whose underlying root exceeds one true, and the number of factors extracted was confirmed by the Cattell's Scree test (Curtiss & Klemanski, 2014), where a curve was drawn by representing the roots underlying the vertical axis and the number of factors extracted on the horizontal axis as shown in the following figure:
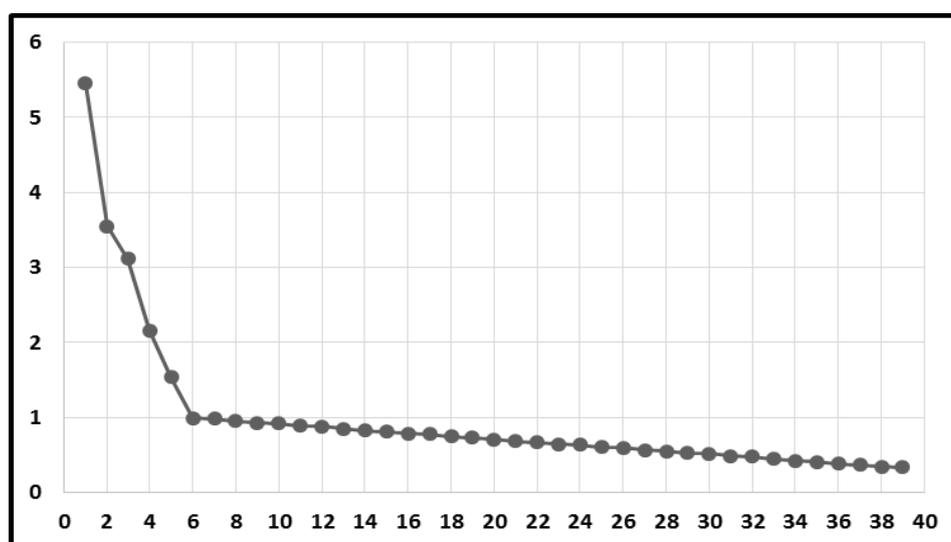


**Figure 1.** *A curve representing the eigenvalue and factors extracted from the EFA for the FFMQ*

By examining the curve in figure (1), the curve turns at factor (6), which supports the loading of FFMQ items on five factors.

o **Step 3**: Extracting values for loadings and variance ratio explained: Through the previous step, five factors were extracted for a mindfulness questionnaire with five aspects, on which all the items of the questionnaire were loaded. The oblique rotation of the axes was done using the Direct Oblimin Method, and the following table shows the results of the EFA (using the Principal Axis Factoring method) of the FFMQ:

Table 1 reveals that items (4, 9, 19, 21, 24, 29, 33) were more loaded on the first factor, as the eigenvalue value reached 3.07, and the variance explained for this factor was 7.87. These items express the non-reactivity factor, and items (1, 6, 11, 15, 20, 26, 31, 36) were more loaded on the second factor, where the eigenvalue value was 2.769. The variance explained for the description factor was 7.10. Items (2, 7, 12, 16, 22, 27, 32, 37) were more loaded on the third factor, where the eigenvalue value was 3.918, and the variance explained for this factor was 10.05.

**Table 1**

*Pattern matrix (principal axis factoring analysis with Oblique Oblimin rotation) of the FFMQ*

| Items | Factor loadings after rotation | | | | | Communalities |
| | Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 | |
|---|---|---|---|---|---|---|
| 4 | 0.474 | 0.206 | 0.167 | 0.160 | 0.133 | 0.338 |
| 9 | 0.579 | 0.241 | 0.289 | 0.207 | 0.143 | 0.541 |
| 19 | 0.604 | 0.095 | 0.169 | 0.203 | 0.111 | 0.455 |
| 21 | 0.536 | 0.212 | 0.171 | 0.152 | 0.104 | 0.396 |
| 24 | 0.447 | 0.218 | 0.153 | 0.166 | 0.228 | 0.350 |
| 29 | 0.398 | 0.170 | 0.088 | 0.197 | 0.239 | 0.291 |
| 33 | 0.534 | 0.086 | 0.272 | 0.165 | 0.230 | 0.446 |
| 1 | 0.092 | 0.424 | 0.220 | 0.098 | 0.098 | 0.256 |
| 6 | 0.138 | 0.402 | 0.034 | 0.082 | 0.142 | 0.209 |
| 11 | 0.063 | 0.411 | 0.279 | 0.226 | 0.153 | 0.317 |
| 15 | 0.156 | 0.464 | 0.153 | 0.259 | 0.222 | 0.379 |
| 20 | 0.297 | 0.366 | 0.083 | 0.169 | 0.132 | 0.275 |
| 26 | 0.232 | 0.559 | 0.184 | 0.161 | 0.179 | 0.458 |
| 31 | 0.191 | 0.597 | 0.120 | 0.090 | 0.045 | 0.417 |
| 36 | 0.162 | 0.521 | 0.198 | 0.214 | 0.076 | 0.388 |
| 2 | 0.064 | 0.140 | 0.731 | 0.055 | 0.277 | 0.638 |
| 7 | 0.228 | 0.157 | 0.776 | 0.079 | 0.015 | 0.685 |
| 12 | 0.041 | 0.104 | 0.623 | 0.263 | 0.197 | 0.508 |
| 16 | 0.046 | 0.075 | 0.395 | 0.252 | 0.192 | 0.264 |
| 22 | 0.297 | 0.043 | 0.438 | 0.182 | 0.177 | 0.346 |
| 27 | 0.295 | 0.169 | 0.514 | 0.200 | 0.082 | 0.427 |
| 32 | 0.196 | 0.123 | 0.463 | 0.216 | 0.046 | 0.316 |
| 37 | 0.182 | 0.222 | 0.646 | 0.041 | 0.134 | 0.519 |
| 5 | 0.039 | 0.081 | 0.269 | 0.440 | 0.212 | 0.319 |
| 8 | 0.205 | 0.125 | 0.166 | 0.399 | 0.214 | 0.290 |
| 13 | 0.232 | 0.100 | 0.205 | 0.447 | 0.333 | 0.416 |
| 18 | 0.222 | 0.177 | 0.150 | 0.460 | 0.197 | 0.354 |
| 23 | 0.180 | 0.200 | 0.174 | 0.467 | 0.235 | 0.376 |
| 28 | 0.165 | 0.143 | 0.185 | 0.497 | 0.155 | 0.354 |
| 34 | 0.192 | 0.189 | 0.125 | 0.472 | 0.232 | 0.364 |
| 38 | 0.270 | 0.181 | 0.140 | 0.641 | 0.182 | 0.569 |
| 3 | 0.169 | 0.154 | 0.208 | 0.316 | 0.472 | 0.418 |
| 10 | 0.175 | 0.208 | 0.181 | 0.254 | 0.453 | 0.377 |
| 14 | 0.122 | 0.205 | 0.242 | 0.339 | 0.495 | 0.475 |
| 17 | 0.158 | 0.210 | 0.278 | 0.158 | 0.339 | 0.286 |
| 25 | 0.199 | 0.139 | 0.107 | 0.242 | 0.480 | 0.359 |
| 30 | 0.168 | 0.287 | 0.205 | 0.167 | 0.653 | 0.607 |
| 35 | 0.318 | 0.346 | 0.240 | 0.235 | 0.514 | 0.598 |
| 39 | 0.251 | 0.134 | 0.209 | 0.240 | 0.507 | 0.439 |
| **Eigenvalue** | 3.070 | 2.769 | 3.918 | 3.098 | 2.965 | |
| **Variance explained** | 7.87% | 7.10% | 10.05% | 7.94% | 7.60% | |
| **Cumulative variance explained** | 7.87% | 14.97% | 25.02% | 32.96% | 40.57% | |

By studying the contents of the items, we find that they express the acting with awareness factor. Items (5, 8, 13, 18, 23, 28, 34, 38) were more loaded on the fourth factor, where the eigenvalue value was 3.098, and the variance explained for this factor was 7.94. These items express the non-judgment factor, while items (3, 10, 14, 17, 25, 30, 35, 39) were more loaded on the fifth factor, where the eigenvalue value was 2.965. The cumulative variance explained for this factor was 7.60 and by studying the contents of these items it was found that they expressed the observation factor.

- *Confirmatory factor analysis:(CFA)*

The CFA was used in a diagonally weighted least squares method, the FFMQ measurement model was tested, and the measurement model consisted of five dimensions: (1) non-reactivity which included 7 items, (2) description which included 8 items, (3) acting with awareness which included 8 items, (4) non-judgment which included 8 items, and (5) observation which included 8 items, so the total number of items in the measurement model were 39 items. Table 2 shows goodness-of-fit statistical values. From this table, it appeared that goodness-of-fit statistical values were good and fell within acceptable limits, thus indicating that the measurement model matched with the actual data.

**Table 2.**

*Goodness-of-fit statistics values for the CFA Model for the (FFMQ)*

| Fit indices | Model fit statistics | Acceptable value |
|---|---|---|
| Chi square | Chi square722.88 = df692 = | Chi square isn't significant |
| Chi square/df | 1.045 | Chi square/df<3 |
| Comparative Fit Index (CFI) | 96.0 | CFI≥95 |
| Root Mean Square Error of Approximation (RMSEA) | 0.054 | RMSEA≤0.06 |
| Tucker–Lewis index (TLI) | 0.97 | TLI≥95 |
| Standardized Root Mean Squared Error (SRMR) | 0.079 | SRMR≤0.06 |
| Goodness of Fit Index (GFI) | 0.95 | GFI≥95 |
| Incremental Fit Index (IFI) | 0.96 | IFI≥95 |

From Table (2), it appears that goodness-of-fit statistical values were good and fell within acceptable limits, thus indicating that the measurement model matches actual data. Table (3) shows the values of loadings and the significance level of the FFMQ items according to the confirmatory factor analysis model:

Table 3 shows the loading values and the significance level of the FFMQ items according to the confirmatory factor analysis model (CFAM) for the FFMQ:

**Table 3**

*Loading values and the significance level of the FFMQ items according to the CFA model*

| Dimensions | Items | Loadings | | Standard error | Z value | Dimensions | Items | Loadings | | Standard error | Z value |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Standardized | Unstandardized | | | | | Standardized | Unstandardized | | |
| Non-reactivity | 4 | 0.39 | 0.87 | 0.070 | 12.43 | Non judgment | 5 | 0.73 | 0.62 | 0.081 | 7.75 |
| | 9 | 0.49 | 0.48 | 0.073 | 6.86 | | 8 | 0.60 | 0.51 | 0.080 | 6.38 |
| | 19 | 0.35 | 0.38 | 0.120 | 3.17 | | 13 | 0.73 | 0.70 | 0.070 | 10.00 |
| | 21 | 0.62 | 0.70 | 0.099 | 7.07 | | 18 | 0.36 | 0.57 | 0.110 | 5.18 |
| | 24 | 0.72 | 0.69 | 0.080 | 8.63 | | 23 | 0.84 | 0.51 | 0.100 | 5.10 |
| | 29 | 0.43 | 0.69 | 0.160 | 4.31 | | 28 | 0.41 | 0.40 | 0.080 | 5.00 |
| | 33 | 0.34 | 0.79 | 0.069 | 11.45 | | 34 | 0.77 | 0.57 | 0.104 | 5.70 |
| Description | 1 | 0.57 | 0.46 | 0.160 | 2.88 | | 38 | 0.74 | 0.53 | 0.120 | 4.42 |
| | 6 | 0.45 | 0.76 | 0.060 | 12.67 | Observation | 3 | 0.69 | 0.66 | 0.130 | 5.08 |
| | 11 | 0.70 | 0.61 | 0.098 | 6.22 | | 10 | 0.45 | 0.46 | 0.080 | 5.75 |
| | 15 | 0.73 | 0.49 | 0.150 | 3.27 | | 14 | 0.87 | 0.57 | 0.130 | 4.38 |
| | 20 | 0.67 | 0.50 | 0.130 | 3.85 | | 17 | 0.35 | 0.38 | 0.120 | 3.17 |
| | 26 | 0.60 | 0.58 | 0.190 | 3.05 | | 25 | 0.48 | 0.57 | 0.070 | 8.14 |
| | 31 | 0.47 | 0.83 | 0.190 | 4.37 | | 30 | 0.61 | 0.52 | 0.080 | 6.50 |
| | 36 | 0.44 | 0.59 | 0.180 | 3.28 | | 35 | 0.68 | 0.33 | 0.120 | 2.75 |
| Act with awareness | 2 | 0.41 | 0.74 | 0.070 | 10.57 | | 39 | 0.77 | 0.49 | 0.070 | 7.00 |
| | 7 | 0.66 | 0.77 | 0.060 | 12.83 | | | | | | |
| | 12 | 0.73 | 0.63 | 0.100 | 6.30 | | | | | | |
| | 16 | 0.57 | 0.43 | 0.150 | 2.87 | | | All Z values in this table are significant at (0.01) level | | | |
| | 22 | 0.77 | 0.46 | 0.170 | 2.71 | | | | | | |
| | 27 | 0.61 | 0.48 | 0.120 | 4.00 | | | | | | |
| | 32 | 0.79 | 0.53 | 0.140 | 3.79 | | | | | | |
| | 37 | 0.58 | 0.58 | 0.080 | 7.25 | | | | | | |

It is clear from Table (3) that all the values of standardized loadings were greater than 0.3 and statistically significant at $p$ = 0.01, which confirms the verification of the structural validity of the FFMQ. Figure (2) shows the confirmatory factor analysis model of the FFMQ:
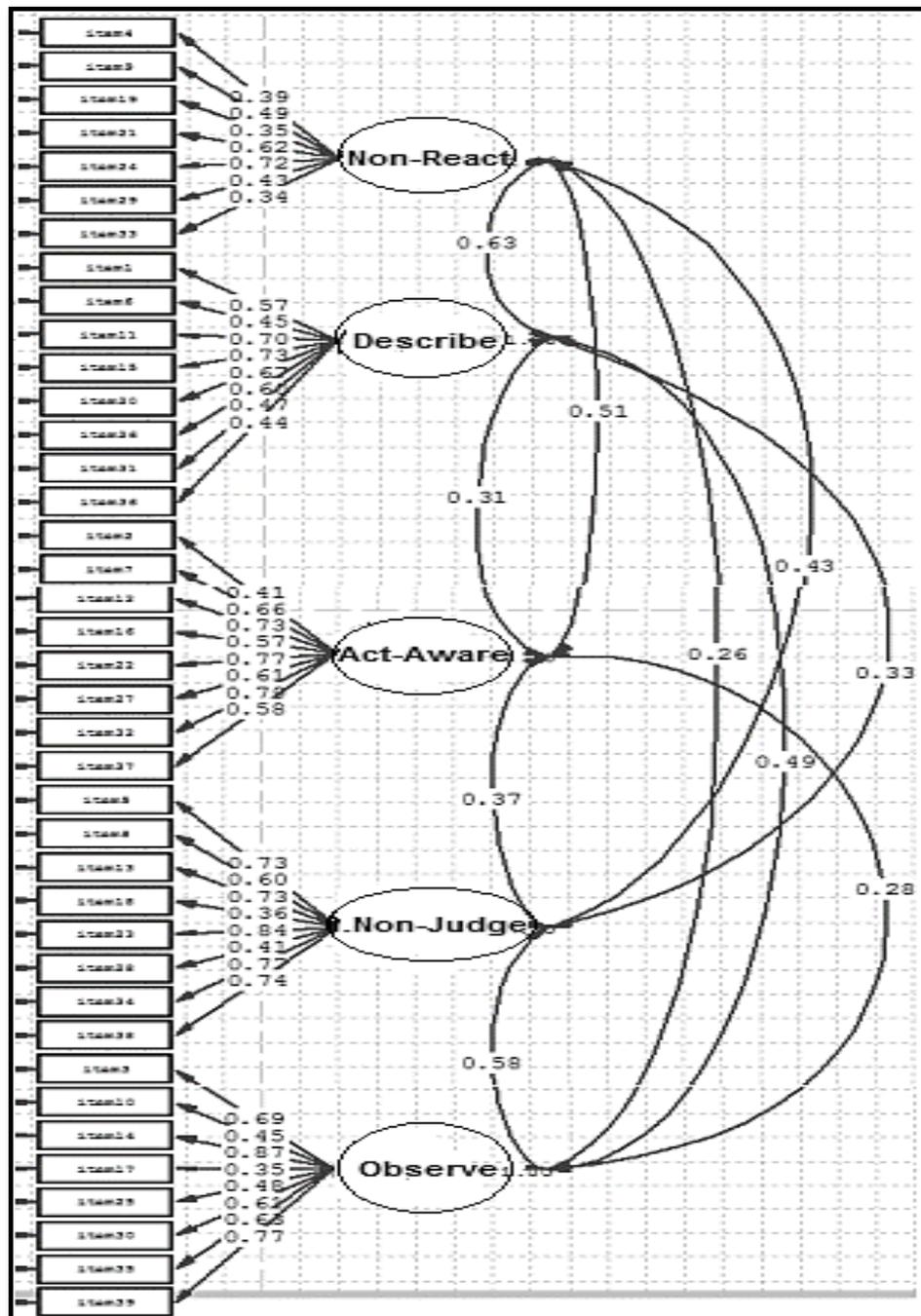
**Figure 2.** *Confirmatory factor analysis model for FFMQ*

- *Concurrent Validity:*

The second question of the study: "What is the significance of the concurrent validity of the Five-Facet Mindfulness Questionnaire on Egyptian university students?" To answer this question, the researcher calculated the concurrent validity of the FFMQ and the coefficient of correlation between students' scores on the FFMQ and their scores on the following scales: (1) Beck Depression Inventory (BDI-II), (2) the Thought Fusion Scale (TFS), (3) the Cognitive Emotional Regulation Strategies Scale (CERSS), and (4) the Cognitive Self-Consciousness Scale (CSCS). The following is a presentation of the concurrent validity results:

1. *The correlation between the FFMQ and Beck Depression Scale (BDI-II)*: The Pearson correlation coefficient calculated between the students' scores on the FFMQ and their scores on the BDI-II is shown in Table (4):

**Table 4**

*Pearson correlation coefficient between students' FFMQ scores and their BDI-II scores*

| Dimensions | BDI-II |
|---|---|
| Non-reactivity | 0.080- |
| Description | 0.093 |
| Act with Awareness | **0.260- |
| Non judging | **0.261- |
| Observation | **0.347 |
| Total score | 0.044- |

**significant at level (0.01)

2. *The correlation between FFMQ and Thought Fusion Scale (TFS):* The Pearson correlation coefficient calculated between the students' scores on the FFMQ and their scores on the TFS is shown in table (5) below:

**Table 5**

*Pearson correlation coefficient between students' FFMQ scores and their TFS scores*

| facet of FFMQ | Thought-Event Fusion | Thought-Action Fusion | Thought-Object fusion | Total score for TFS |
|---|---|---|---|---|
| **Non-reactivity** | 0.031- | 0.037- | 0.083 | 0.002- |
| **Description** | 0.101 | 0.037 | **0.237 | *0.147 |
| **Acting with Awareness** | *0.170- | 0.092- | 0.111- | *0.160- |
| **Non-judgment** | **0.335- | **0.187- | **0.187- | **0.306- |
| **Observation** | *0.152 | 0.083 | **0.301 | **0.213 |
| **Total score** | 0.087- | 0.059- | 0.097 | 0.034- |

*significant at level (0.05) **significant at level (0.01)

3. *The correlation between FFMQ and the Cognitive Emotion Regulation Strategies Scale (CERSS)*: The Pearson correlation coefficient calculated between the students' FFMQ scores and their CERSS scores is shown in table (6) below:

**Table 6**

*Pearson correlation coefficient between students' FFMQ scores and their CERSS scores*

| CERSS | Non-reactivity | Description | Acting with Awareness | Non judgment | Observation | Total score |
|---|---|---|---|---|---|---|
| **Self-blame** | 0.060 | 0.104 | *0.139 | **0.319 | 0.075- | *0.167 |
| **Acceptance** | **0.213 | **0.323 | 0.081 | **0.224 | **0.252 | **0.331 |
| **Focus on rumination** | 0.091 | **0.182 | 0.097 | **0.189 | **0.192 | **0.232 |
| **Positive refocusing** | **0.238 | **0.342 | *0.164 | **0.261 | **0.290 | **0.394 |
| **Refocus on planning** | **0.254 | **0.333 | **0.198 | **0.259 | **0.220 | **0.383 |
| **Positive reappraisal** | **0.282 | **0.316 | **0.223 | **0.290 | **0.195 | **0.394 |
| **Putting into perspective** | **0.232 | **0.300 | *0.172 | *0.170 | **0.342 | **0.371 |
| **Catastrophizing** | 0.056 | **0.039 | *0.148 | **0.371 | 0.083- | *0.163 |
| **Blaming others** | 0.047 | *0.135 | *0.168 | **0.348 | 0.078 | **0.243 |
| **Total score** | **0.215 | **0.300 | **0.204 | **0.357 | **0.195 | **0.388 |

*significant at level (0.05) **significant at level (0.01)

4. *The correlation between the FFMQ and the cognitive self-consciousness scale (CSCS):* The Pearson correlation coefficient calculated between the students' FFMQ scores and their CSCS scores is shown in table (7) below:

**Table 7**

*Pearson correlation coefficient between students' FFMQ scores and their CSCS scores*

| | | CSCS | | |
|---|---|---|---|---|
| Facets | | Automatic cognitive self-consciousness | Volitional cognitive self-consciousness | Total CSCS |
| FFMQ | Non-reactivity | *0.138 | **0.184 | **0.268 |
| | Description | 0.122 | *0.159 | **0.217 |
| | Acting with awareness | 0.073 | *0.159 | **0.211 |
| | Non-judgment | **0.181 | **0.220 | **0.218 |
| | Observation | *0.134 | 0.124 | *0.143 |
| | Total Scores | *0.153 | *0.139 | **0.316 |

*significant at level (0.05) **significant at level (0.01)

- *Reliability:*

*Cronbach's alpha:* To check the reliability of the FFMQ, the Cronbach's alpha parameter was used, where the FFMQ was administered to the research sample, and the reliability of the questionnaire was calculated as shown in table (8) below:

**Table 8**

*Reliability coefficient values for FFMQ*

| N | Dimensions | Number of items | reliability coefficient (Cronbach's alpha) |
|---|---|---|---|
| 1 | Non-reactivity | 7 | 0.691 |
| 2 | Description | 8 | 0.773 |
| 3 | Acting with awareness | 8 | 0.717 |
| 4 | Non-judgment | 8 | 0.81 |
| 5 | Observation | 8 | 0.715 |
| | Total scale | 39 | 0.827 |

From table (8) above, it is clear that the values of reliability coefficients using the Alpha Cronbach equation ranged between 0.691 and 0.827, which are acceptable values and indicate the reliability of the FFMQ.

- *Composite reliability*

To calculate the composite reliability, the standardized loading values and the standard errors resulting from the confirmatory factor analysis have been relied on for each FFMQ dimension, and the composite reliability has been calculated using the following equation (Raykov, 1997):

$$CR = \frac{\left(\sum \lambda_i\right)^2}{\left(\sum \lambda_i\right)^2 + \left(\sum \epsilon_i\right)}$$

where:
$\lambda_i$ = completely standardized loading for the index
CR= composite reliability
$\epsilon\_i$ = standard error for the index

Applying the above equation, we obtain the composite reliability values for the FFMQ dimensions as shown in table (9) below:

**Table 9**

*Composite reliability values for the FFMQ dimensions*

| N | Dimensions | Total items | Composite reliability |
|---|---|---|---|
| 1 | Non-reactivity | 7 | 0.720 |
| 2 | Description | 8 | 0.705 |
| 3 | Act with Awareness | 8 | 0.792 |
| 4 | Non judging | 8 | 0.828 |
| 5 | Observation | 8 | 0.801 |

It is clear from the above table that the composite reliability values for the questionnaire dimensions ranged between 0.705 and 0.828, which are acceptable values and indicate the reliability of the FFMQ.

- *Internal consistency*

The third question is "What is the significance of the FFMQ's internal consistency?" To

answer this question, Pearson correlation coefficient between the score of each dimension of the scale and the total score of the scale was calculated, and the correlation coefficients were all significant at $p = 0.01$ as shown in table (10) below:

**Table 10**

*Pearson correlation coefficients between dimensional scores and the overall FFMQ score*

| N | Dimensions | Correlation with scale |
|---|---|---|
| 1 | Non-reactivity | 0.578 |
| 2 | Description | 0.61 |
| 3 | Acting with awareness | 0.367 |
| 4 | Non-judgment | 0.449 |
| 5 | Observation | 0.468 |

The correlation coefficient calculated between the score of each item of the scale and the total score of the dimension to which the item belongs and the total score of the scale as shown in table (11) below:

**Table 11**

*Pearson correlation coefficient between each item of the FFMQ and the total score on each dimension and the total score of the scale.*

| Dimensions | items | Correlation with Dimensions | Correlation with scale | Dimensions | items | Correlation with Dimensions | Correlation with scale | Dimensions | items | Correlation with Dimensions | Correlation with scale |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Non-reactivity | 4 | 0.342 | 0.504 | Act with Awareness | 2 | 0.524 | 0.564 | Observation | 3 | 0.392 | 0.359 |
| | 9 | 0.528 | 0.331 | | 7 | 0.590 | 0.607 | | 10 | 0.609 | 0.427 |
| | 19 | 0.491 | 0.409 | | 12 | 0.588 | 0.527 | | 14 | 0.374 | 0.343 |
| | 21 | 0.412 | 0.385 | | 16 | 0.525 | 0.536 | | 17 | 0.638 | 0.355 |
| | 24 | 0.384 | 0.350 | | 22 | 0.578 | 0.554 | | 25 | 0.452 | 0.635 |
| | 29 | 0.521 | 0.376 | | 27 | 0.625 | 0.638 | | 30 | 0.625 | 0.532 |
| | 33 | 0.508 | 0.636 | | 32 | 0.567 | 0.613 | | 35 | 0.456 | 0.447 |
| Description | 1 | 0.611 | 0.600 | | 37 | 0.603 | 0.455 | | 39 | 0.563 | 0.345 |
| | 6 | 0.347 | 0.424 | Non judging | 5 | 0.462 | 0.588 | | | | |
| | 11 | 0.510 | 0.452 | | 8 | 0.553 | 0.383 | | | | |
| | 15 | 0.512 | 0.616 | | 13 | 0.492 | 0.521 | | | | |
| | 20 | 0.448 | 0.592 | | 18 | 0.514 | 0.636 | **All correlations in this table are significant at (0.01) level** | | | |
| | 26 | 0.623 | 0.443 | | 23 | 0.350 | 0.544 | | | | |
| | 31 | 0.585 | 0.478 | | 28 | 0.609 | 0.358 | | | | |
| | 36 | 0.588 | 0.422 | | 34 | 0.431 | 0.397 | | | | |
| | | | | | 38 | 0.338 | 0.432 | | | | |

## Discussion

The results of the present study indicate that the FFMQ is a valid and reliable measure of mindfulness in the Egyptian sample. First, by answering the third question regarding the reliability of the FFMQ, it is clear in table (8) that Alpha Cronbach values ranged between 0.691 and 0.827, which are acceptable values, as the composite reliability ranged between 0.705 and 0.828, which are also acceptable values indicating the reliability of the FFMQ, as shown in table (9). The questionnaire showed excellent internal consistency, where Pearson correlation coefficient between the score of each dimension of the scale and the total score of the scale was 0.01 as shown in table (10). A correlation was found between the score of each item of the scale and the total score of the dimension to which the item belongs and the total score of the scale, as shown in table (11). All correlation values were 0.01. This result agreed with Meng et al. (2020), which confirmed that the value of Alpha Cronbach was acceptable and indicated its reliability. This result is also consistent with Radoń (2014), which confirmed the reliability of the FFMQ, as the value of Alpha Cronbach reached 73.86 except for non-reactivity.

Second, to analyze and discuss the results of the construct validity of the FFMQ, whose results were presented by answering the second question. The results of the EFA in the current study supported a five-factor model of the FFMQ in a non-clinical sample of Egyptian university students (N = 207), and it reached a curve through the representation of the underlying roots. It was shown that the curve turns on Factor No. (6), which supported the loading of the questionnaire items on five factors (See figure 1, and table 1). Concerning the CFA, its results have found a measurement model consisting of five factors. The value of Chi square was 722.88, and df = 692, and the value of the goodness of fit index (GFI) was 0.95. The value of Standardized Root Mean Squared Error (SRMR) was 0.79, and the value reached by the Comparative Fit Index (CFI) was 0.96. The value of the Incremental Fit Index (IFI) was 0.96, and the standardized loading values for items on factors and the overall questionnaire were greater than 0.3, which is significant at $p = 0.01$.

The results of the current study agreed with Meng et al. (2020). It supported the results of the EFA and CFA. The five-factor model is consistent with the original FFMQ, and confirmed that the FFMQ is the most appropriate for this study. Nevertheless, the results of the current study differed from the findings of Baer (2007), as the CFA results showed that there are four facets that appeared as clear indicators of the structure of mindfulness except (observation), and they agreed with the results of Radoń (2014); Adrian Wells (2005), which supported the results of the CFA as a four-factor model without observation. The results of the present study are also inconsistent with those of Pang and Ruch (2019), which supported the results of the CFA as a three-factor model consisting of observation, description, and non-judgment, as supported by the study of Chadwick et al. (2008) which suggested that it had two factors: present awareness and acceptance. The results of the present study also indicated the possibility of examining these two factors separately, and this is confirmed by Baer et al. (2008) with a four-factor model.

By reviewing the results of a lot of recent literature dealing with the reliability and validity of the FFMQ, the researcher finds that there are inconsistencies and disagreements between its results, as Baer et al. (2004), during the construction of the Kentucky Inventory for Mindfulness Skills, identified four skills: (1) observation, (2) description, (3) acting with awareness, and (4) acceptance without judgment. Then the results of the studies of Baer et

al. (2008); Radoń (2014); Williams et al. (2014) came to support a four-factor model excluding the facet of observation, and the results of the studies of Pang and Ruch (2019), and Cardaciotto et al. (2008) supported a three-facet model, and the results of Erus and Tekel (2020)supported only two factors. Before that the results of Shapiro and Carlson (2009)came to add an additional component to the structure of mindfulness, which is cognitive disorganization, and considered that the three components of mindfulness are interconnected and grown together, although Baer et al. (2008) stressed the need to understand the components of mindfulness as separate structural facets.

Third, with regard to the results of Concurrent Validity in the second question, a correlation was found between the FFMQ and some adaptive and maladaptive psychological variables such as depression, thought fusion beliefs (thought-action fusion, thought-event fusion, thought-object fusion), cognitive emotion regulation strategies (acceptance, positive refocusing, refocus on planning, positive reappraisal, putting into perspective, self-blame, focus on rumination, catastrophizing, blaming others), and cognitive self-consciousness (automatic, volitional). Regarding the values of the coefficients of correlation between mindfulness and depression, the current study found that: (1) the facets of acting with awareness and non-judgment are negatively related to depression, and this result is consistent with Cash and Whittingham (2010); Curtiss and Klemanski (2014); Droutman et al. (2018), who found that there was a negative correlation between acting with awareness and non-judgment and depression. This result also does not agree with Petrocchi and Ottaviani (2016); Raphiphatthana et al. (2016), who concluded that acting with awareness was not associated with depression or anxiety. (2)

The non-reactivity and description facets are associated with depression, and this result is consistent with Desrosiers et al. (2013), who concluded that description did not correlate with general anxiety stress, as this finding is inconsistent with the findings of Bostanov et al. (2018); Broderick and Metz (2009); Raphiphatthana et al. (2016), which showed a negative relationship between description and depression. (3) what is surprising is that observation was positively associated with depression. There is a negative correlation between non-reactivity and depression. This result is consistent with the findings of the studies of Baer et al. (2008); Curtiss and Klemanski (2014); Duan (2016); Meng et al. (2020); (Raphiphatthana et al., 2016) reached, where the results of the global analysis concluded that observation negatively affected the underlying construction of mindfulness, and identified mindfulness in this study with individuals raised in four aspects, and low in observation. This result differed with Barnhofer et al. (2011); Desrosiers et al. (2013), who concluded that observation was not associated with depression. The current research supports Meng et al. (2020) analysis of this result, which relates to the positive correlation between observation and depression, as it is stated that recent literature indicates that self-focused attention can often be non-adaptive, and includes training in mindfulness and close monitoring of internal stimuli, even if they are not happy. Thus, a close observation of inner experience may be non-adaptive for the general public, but it is adaptive when it is carried out with consciousness or mindfulness.

After reviewing the results of most studies regarding observation, we find a clear variation, as Baer et al. (2004); Cardaciotto et al. (2008); Cash and Whittingham (2010); Meng et al. (2020) concluded that observation was a more powerful facet of mindfulness, while Baer et al. (2006); Cash and Whittingham (2010); Curtiss and Klemanski (2014);

Desrosiers et al. (2013); Lilja et al. (2011); Pearson et al. (2015); Radoń (2014); Veehof et al. (2011); Adrian Wells (2005); Adrian Wells and Christine (1999); A. Wells et al. (2001); Williams et al. (2014) concluded that observation is not important as part of mindfulness. The current researcher believes that the content of the observation items (attention) in the original FFMQ should be reviewed; its content may express things that are not included in the facet of observation, which should focus on the current experience, without thinking about the past or the future, or even touching about the experiences of the present other than the experience it is going through.

As for the correlation of mindfulness with thought fusion beliefs, the results of the current study concluded that the facets of acting with awareness and non-judgment correlated negatively with thought fusion beliefs; the facets of observation and description positively correlated with thought fusion beliefs in its three dimensions; and the facet of non-reactivity did not correlate with thought fusion beliefs (See table 5). This result is explained in the light of what Adrian Wells (2005) mentioned regarding the Cognitive Attention Syndrome (CAS), which he described as excessive self-focus, repetitive negative thinking, and an increased focus on threat. Adrian Wells (2005) sees the primary goal of metacognitive therapy as promoting detached mindfulness, which he defined as the objective awareness of inner thoughts and events in the absence of conceptual analysis. The most important characteristics of detached mindfulness are: (1) awareness of thoughts, (2) understanding thoughts as events rather than facts, (3) flexible attention, (4) low levels of internal dialogue based on meaning and analysis, and (5) focusing on responses directed towards target. The frequent negative association of non-judgment and acting with awareness with non-adaptive variables justifies that it is indeed one of the most important components of mindfulness, in addition to the facet of non-reactivity, Therefore, researchers and clinicians who rely on the original FFMQ must review the facets of observation and description.

Regarding the association of the five facets of mindfulness with cognitive emotional regulation strategies, these strategies were divided into two types: (1) adaptive strategies, which consist of five strategies (acceptance, positive refocusing, refocus on planning, positive reappraisal, and putting into perspective), and (2) non-adaptive strategies, which consist of four strategies (self-blame, focus on rumination, catastrophizing, and blaming others). As regards adaptive strategies, the results of the current study showed that all facets of mindfulness positively correlated with adaptive emotion regulation strategies, except for acting with awareness which correlated only with four strategies and did nor correlate with the acceptance strategy (See table 6). This finding is consistent with Desrosiers et al. (2013), who showed a positive correlation between mindfulness practice and positive reappraisal strategy in societal samples. The researcher believes that this result is expected, as many researchers studied mindfulness as an emotional regulation strategy such as Bohlmeijer et al. (2011); T. A. Brown (2015); Lutz et al. (2008); Adrian Wells (2005), and the best evidence for this is the Toronto Mindfulness Scale (Lau et al., 2006; Li et al., 2016), which has three dimensions, two of them are for emotion regulation.

As for non-adaptive emotional regulation strategies, the results of the current study, as shown in table (6), indicated that non-reactivity did not correlate with all non-adaptive strategies, and observation correlated only with one strategy which is catastrophic thinking, and description correlated with three strategies, and did not correlate with self-

blame. The unexpected result of the study is that acting with awareness positively correlated with self-blame and blame for others, and non-judgment was correlated with four strategies: self-blame, focus on rumination, catastrophic thinking, and blame of others. The results of this study are partly consistent with Noguchi (2017), who concluded that mindfulness negatively correlated with rumination, suppression of thought and neuroticism, and the two facets of non-reactivity and acting with awareness did not correlate with the strategy of focusing on thought / rumination. The results of this study are also consistent with those of Desrosiers et al. (2013), which showed that higher levels of rumination were associated with lower levels of mindfulness, and higher levels of depression.

Finally, regarding the correlations of the five facets of mindfulness with cognitive self-consciousness, the results of the present study have shown that all facets of mindfulness was positively correlated with the overall construction of cognitive self-consciousness, and in relation to the two-dimensional correlation, it has been positively associated with non-reactivity, description, and acting with awareness with volitional cognitive self-consciousness. As for the observation and non-judgment, it was positively correlated with automatic cognitive self-awareness. This result is justified, as mindfulness is defined as an intentional process that is carried out in a deliberate and purposeful manner by the individual to push attention towards the present moment without judgment. This finding is consistent with the findings of Spinhoven et al. (2017), where the facet of non-reactivity was positively loaded with self-regulation, while observation, description, and openness to aspects of experience were positively loaded with self-awareness.

## Conclusion

Although the concept of mindfulness has received much attention by hundreds of researchers over the past thirty years, and despite the increasing number of studies that have attempted to establish the reliability and validity of self-report scales that measure them, these studies are still facing difficulties due to the nature of this concept, and because it is restricted to attention / awareness or acceptance without judgment. This study attempted to derive this concept from under the general concept that mindfulness is only understood through it, which is beyond knowledge. Mindfulness is part of metacognition, and awareness is its most important characteristic, and it will only be understood and measured through the general concept with which it is linked through various tools. The tools for measuring mindfulness have differed in their function according to the differing perceptions of their creators about the concept of mindfulness. There are those who perceive mindfulness as a trait, or some consider it a state, or a process, or a result. A few perceive mindfulness as one factor, others perceive it as a group of interconnected factors, or independent factors. Due to the differences in researchers' views of the concept of mindfulness, these studies viewed mindfulness as a process, or a result, or an attribute, and others defined it as a condition.

Despite the potential problems of assessing mindfulness with self-report measures, many of the tools are specifically designed to attract the multiple components of this concept Without these tools researchers and clinicians who use mindfulness will not be able to (1) determine whether the proposed skills for mindfulness-based interventions have already been acquired, (2) explore and describe the possible working mechanisms for mindfulness-based interventions, and (3) distinguish between mindfulness skills and other

skills that mindfulness brings about such as psychological well-being, happiness, and social support. Feldman et al. (2007) add that these measures are important for examining the changes in individuals who practice mindfulness, and the effect of mindfulness training on their mental health.

To sum up, therefore, there has been an increased interest on the part of researchers in studying the effect of mindfulness-based interventions for individuals with physical and psychological problems (Alsubaie et al, 2017). From this standpoint, the researcher found a target for this current study in the Egyptian environment. The study on mindfulness practices and interventions in the field of psychological counseling would be beneficial to children, adolescents, youths and adults in achieving psychological well-being, regulation of emotions. The clinicians would find useful insights for treating cases that suffer from anxiety, obsessive-compulsive disorder, and ADHD. This study recommends to devise a reliable and valid tool to measure mindfulness, to understand changes that occur in it and the accompanying psychological variables.

## Acknowledgement

## Conflicts of interest

The author declares no conflicts of interest.

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