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Preservative Thinking and Acceptance without Judgment: How they Differ in People with/without Major Depression and Anxiety Problems

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Abstract

Persistent or repetitive negative thinking, also known as negative cognitive processes (e.g., rumination and worry), can be associated with various mental health conditions, including depression and anxiety. Acceptance without judgment, on the other hand, has been proposed as a protective factor against a wide range of psychological problems by targeting risk factors such as rumination and worry, thereby lowering depression and anxiety. These processes and their mediating effects have received little attention in Arab societies. This study aimed to examine ruminative brooding, reflective pondering, worry, and acceptance without judgment in Saudi participants with/without major depression and anxiety problems. This study aimed to establish a groundwork for upcoming initiatives to adapt mindfulness interventions to the Saudi and Arab cultures. The study included 101 participants (63 women) with a mean age of 35 (*SD*= 7.8, range= 20-60 years). Participants completed self-reported measures assessing ruminative brooding, reflective pondering, worry, acceptance without judgment, depression, and anxiety. The clinical group (*n*= 33) had higher levels of ruminative brooding, reflective pondering, worry, depression, and anxiety, as well as a lower level of acceptance without judgment than the non-clinical group (*n*= 68). Females scored higher than males on generalized anxiety and worry. The mediational analyses showed that reflective pondering and worry partially mediated the relationship between acceptance without judgment and depression, whereas ruminative brooding did not. Worry also partially mediated the relationship between acceptance without judgment and anxiety, whereas reflective pondering and ruminative brooding did not. More research needs to be done to determine what role repetitive negative processes and mindfulness skills play in understanding depression and anxiety in Arab and Saudi societies.

Keywords: ruminative brooding, reflective pondering, worry, acceptance without judgment, depression, anxiety.

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Novelty and Significance

What is already known about the topic?

- A significant body of research in Western countries has focused on perseverative or repetitive negative processes and how mindfulness skills, including acceptance without judgment, may help decrease such processes.
- No studies have been conducted in Arab regions that specifically look at acceptance without judgment and its connection to depression and anxiety.
- The roles of ruminative brooding, reflective pondering, and worry in this relationship have not been explored.

What this paper adds?

- This study found that participants experiencing major depression and anxiety problems exhibited higher levels of ruminative brooding, reflective pondering, and worry. In contrast, they demonstrated lower levels of acceptance without judgment compared to those in the nonclinical group.
- Reflective pondering and worry partially mediated the relationship between acceptance without judgment and depression. Worry also partially mediated the connection with anxiety, but ruminative brooding did not mediate either of these relationships.

Depression is considered one of the main causes of disability globally, with approximately 322 million people affected, whereas anxiety influences over 264 million people (World Health Organization, 2017). The recent Saudi National Health and Stress Survey (SNHSS; AlTwaijri *et alii*, 2020) reported that 6% of the sample (*n*= 4004) had

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major depression, whereas social anxiety, agoraphobia, generalized anxiety, and panic attacks affected approximately (5.6%, 2.3%, 1.9%, and 1.6%) of the sample, respectively. In addition to their high prevalence, depression and anxiety problems add more burden on both individuals and societies (World Health Organization, 2017).

Perseverative/repetitive negative thinking (e.g., rumination and worry) has been suggested to be a transdiagnostic process, meaning that it can present with a wide range of mental health problems, including depression and anxiety, and can act as a risk factor for the development, persistence, and worsening outcomes of such problems (Arditte Hall, Quinn, Vanderlind, & Joormann, 2019; Ehring & Watkins, 2008; Harvey, Watkins, Mansell, & Shafran, 2004; McEvoy, Watson, Watkins, & Nathan, 2013; McLaughlin & Nolen-Hoeksema, 2011; Nolen-Hoeksema & Watkins, 2011; Watkins, 2008). According to Nolen-Hoeksema's Response Style Theory (RST), rumination is defined as "a mode of responding to distress that involves repetitively and passively focusing on symptoms of distress and the possible causes and consequences of these symptoms" (Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008, p. 400). Other scientists view rumination as an inferencing of adverse and stressful events, a type of self-focus or emotion regulation, and a response to sadness, failure, or social interactions (see a review by Smith & Alloy, 2009). Also, rumination can be seen as an ordinary human experience that becomes problematic when it occurs regularly and uncontrollably (Raes & Williams, 2010). In their analysis of the Ruminative Responses Scale (RRS), Treynor, González, & Nolen-Hoeksema (2003) found that rumination can be divided into two types of factors: ruminative brooding, which is a passive focus on distress symptoms, and reflective pondering, which is an active attempt to understand the problem. Several practical studies using clinical samples, including people with major depression (Goring & Papageorgiou, 2008; Joormann, Dkane, & Gotlib, 2006), and non-clinical samples (Fresco, Frankel, Mennin, Turk, & Heimberg, 2002; Schoofs, Hermans, & Raes, 2010) have supported this conceptualization. Worry, on the other hand, is a feature of a wide range of anxiety problems, including generalized anxiety disorder (GAD) (Barlow, 2004), and is defined as a "series of negative and uncontrollable thoughts and images" (Borkovec, Robinson, Pruzinsky, & DePree, 1983, p. 10). Worry can be used as a problem-solving strategy or coping mechanism (Davey & Wells, 2006). The connection between rumination and worry has received a great deal of attention, and it appears that while both concepts are related, they are also distinct (Goring & Papageorgiou, 2008; Hong, 2007; Wisco *et alii*, 2018). One of the main differences between these concepts is about time, as people with rumination tend to focus on the past, while people with worry focus on the future (Ehring & Watkins, 2008; Nolen-Hoeksema *et alii*, 2008; Nolen-Hoeksema & Watkins, 2011; Smith & Alloy, 2009; Watkins, 2008; Watkins, Moulds, & Mackintosh, 2005).

Practical evidence suggests that both rumination and worry are associated with depression and anxiety in non-clinical (Muris, Roelofs, Rassin, Franken, & Mayer, 2005; Taylor & Snyder, 2021; Wisco, Plate, May, & Aldao, 2018) and clinical samples, including major depression, generalized anxiety, and social anxiety (Arditte Hall *et alii*, 2019; McEvoy *et alii*, 2013). Studies also found that rumination alone is linked to depression and anxiety (Ciesla & Roberts, 2007; Flett, Madorsky, Hewitt, & Heisel, 2002; Fresco *et alii*, 2002; Goldstein, 2006; McLaughlin & Nolen-Hoeksema, 2011; Moulds, Kandris, Starr, & Wong, 2007), increases the likelihood, severity, and duration of depression (Watkins, 2008; Watkins & Teasdale, 2004), as well as predict the onset and recurrence of depressive episodes (Burwell & Shirk, 2007; Cooney, Joormann, Eugène, Dennis, &

Gotlib, 2010; Joormann *et alii*, 2006; Kirkegaard Thomsen, 2006; Morrow & Nolen-Hoeksema, 1990; Nolen-Hoeksema, 2000; Nolen-Hoeksema *et alii*, 2008; Sorg, Vögele, Furka, & Meyer, 2012). In terms of rumination types, those with major depression and social anxiety had higher levels of ruminative brooding and reflective pondering than a healthy control group, with ruminative brooding being more common in people with major depression (D'Avanzato, Joormann, Siemer, & Gotlib, 2013; McEvoy *et alii*, 2013) and comorbid major depression and social anxiety (Arditte Hall *et alii*, 2019). In a study by Schoofs *et alii* (2010), ruminative brooding predicted depression, whereas reflective pondering did not. Another study (Arditte & Joormann, 2011) found a link between reflective pondering and more severe depression and better recovery. In Arab countries, undergraduate students who scored higher on rumination measures also scored higher on depression and anxiety in Saudi Arabia, Egypt, and the United Arab Emirates (Al-khodair, 2014; Thomas & Altareb, 2012).

On the other hand, mindfulness skills, including acceptance without judgment, have been proposed as protective factors against a wide range of psychological problems by targeting risk factors such as rumination and worry, thereby lowering depression and anxiety. In their review, Aldao, Nolen-Hoeksema, & Schweizer (2010) found that acceptance without judgment was the most agreed-upon component of mindfulness. It refers to our ability to accept internal and external experiences without labeling or evaluating them (Baer, 2003; Segal, Williams, & Teasdale, 2013). This attitude and other mindfulness skills can be learned through mindfulness interventions such as Mindfulness-Based Cognitive Therapy (MBCT; Segal *et alii*, 2013) and Mindfulness-Based Stress Reduction (MBSR; Kabat-Zinn, 1994), but they can also be considered a dispositional trait. Many studies showed that a more accepting, non-judgmental attitude is associated with lower levels of ruminative brooding (Alleva, Roelofs, Voncken, Meevissen, & Alberts, 2014), depression, and anxiety (Desrosiers, Klemanski, & Nolen-Hoeksema, 2013; Sampath, Biswas, Soohinda, & Dutta, 2019), predicts depression and anxiety in adults and students (Barcaccia *et alii*, 2019; Cash & Whittingham, 2010; Petrocchi & Ottaviani, 2016), and predicts well-being in both mediating and non-mediating samples (Baer *et alii*, 2008). Recently, there has been more interest in studying mindfulness and depression in Arab societies. Researchers found that higher levels of mindfulness in undergraduate communities in Jordan (ALHarbi, Mhedat, & Alkhazaleh, 2021) and Saudi Arabia (Alatiq, 2016; Alzahrani *et alii*, 2020) were linked to fewer depressive symptoms.

In recent years, there has been an interest in studying the potential mediating roles of perseverative/repetitive negative processes. Desrosiers, Vine, Klemanski, and Nolen-Hoeksema (2013) found that the relationship between mindfulness and depression and anxiety was affected by rumination and worry. A study that involved student samples indicated that the correlations between acceptance without judgment and depression were mediated by ruminative brooding (Alleva *et alii*, 2014) and depressive rumination (Petrocchi & Ottaviani, 2016).

As already mentioned, while much research in Western countries has focused on perseverative or repetitive negative processes (e.g., rumination and worry) and how mindfulness skills, including acceptance without judgment, may help with decreasing such negative processes in various clinical and non-clinical populations, these concepts have received relatively less attention in Arab societies. Additionally, based on the researcher's knowledge, no Arab studies have been conducted to investigate acceptance without judgment and its relationship with depression and anxiety, as well as the possible roles that repetitive negative processes may play in this relationship. The focus of this

study is to examine three repetitive negative processes (ruminative brooding, reflective pondering, and worry) and acceptance without judgment in both clinical and non-clinical samples to highlight the factors that may increase or maintain major depression or anxiety problems as well as the factors that may help with decreasing such processes, thereby adapting the psychotherapies for such problems. This study was the first step in establishing a groundwork for upcoming initiatives to adapt mindfulness interventions to the Saudi and Arab cultures.

This study aimed to explore the relationships between acceptance without judgment and depression and anxiety levels and their connections to key repetitive negative processes, including ruminative brooding, reflective pondering, and worry. It also examined whether participants in the clinical group exhibited different levels of such processes than those in the non-clinical group. Finally, the study investigated whether the relationships between acceptance without judgment and depression and anxiety levels were influenced by ruminative brooding, reflective pondering, and worry.

METHOD

Participants and Design

The study involved 101 adults divided into two groups: A clinical group with 33 participants and a non-clinical group with 68 participants. The average age of the sample was 35 years (*SD*= 7.8), with 38% identifying as male and 62% as female. Additionally, 65% of the participants were married, 80% were employed, and 63% held a university degree. To be included participants had to be adults aged 18 years or older, fluent in Arabic, and able to provide informed consent. For the clinical group, participants were newly diagnosed or ongoing clients with major depression and/or anxiety problems, as confirmed by licensed mental health professionals based on criteria of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5; 2013). Those excluded from the clinical group were individuals diagnosed with other psychological disorders, such as schizophrenia or bipolar disorder, as well as those with comorbid substance dependence. The non-clinical group comprised individuals who had never received a diagnosis of depression or anxiety disorders, which was verified through self-report screening.

Participants in the clinical group were selected using a purposive sampling approach. Psychologists and psychiatrists screened their clients against the study's inclusion and exclusion criteria before inviting eligible individuals to participate. In contrast, a convenience sampling approach was employed for the non-clinical participants recruited from the staff working at King Saud University. Participation was entirely voluntary, and no monetary compensation was provided.

A priori sample size was estimated using G*Power to determine the number of participants needed for this study. The analysis includes the following parameters: An equal allocation ratio (1:1), power (1-β)= 0.80, a significant level (α) of 0.05, and a moderate effect size (Cohen's *d*= 0.5). Based on these assumptions, the estimated minimum required sample size was 64 participants per group. Despite efforts to reach the target sample size, recruiting participants for the clinical group proved challenging. Over 65 participants were contacted. However, many declined to participate due to time constraints and personal commitments. The recruitment process was further constrained by a limited 5-month recruitment period, which restricted access to a larger pool of potential participants. Additionally, the strict inclusion criteria further reduced the number of eligible participants. As a result, the clinical group included only 33 participants, whereas the non-clinical group met more than the intended sample size (*n*= 68).

Instruments and Measures

Ruminative Responses Scale (RRS; Treynor, González, & Nolen-Hoeksema, 2003). The RRS was used to assess ruminative brooding and reflective pondering. It consists of 22 items, reflecting the two types of rumination (ruminative brooding, reflective pondering) and depression related. Each item is scored on a 4-point Likert scale ranging from 1 (almost never) to 4 (almost always), and the total RRS score is calculated by adding the item scores. This study used ten items to assess ruminative brooding and reflective pondering. The ruminative brooding subscale is obtained by adding items 5, 10, 13, 15, and 16, whereas the reflective pondering subscale is obtained by adding items 7, 11, 12, 20, and 21. The RRS showed strong reliability and validity (Treynor *et alii*, 2003). Examples of ruminative brooding and reflective pondering items are: "You think, what am I doing to deserve this?"; "You think, why do I always react this way?"; "You go away by yourself and think about why you feel this way"; and "You write down what you are thinking about and analyze it". The RRS Arabic Version (Al-Khodair, 2014) showed good psychometric properties in Saudi Arabia. In this study, Cronbach's alphas for the ruminative brooding and reflective pondering subscales were .83, and .52, respectively.

Penn State Worry Questionnaire (PSWQ; Meyer, Miller, Metzger, & Borkovec, 1990). The PSWQ was used to assess worry, including excessiveness and uncontrollability. It consists of 16 items, with responses on a 5-point Likert scale ranging from 1 (not at all typical of me) to 5 (very typical of me). The overall PSWQ score can be obtained by summing up the items' scores after reversing the items 1, 3, 8, 10, and 11. The minimum score on this measure is 16, while the maximum score is 80. The PSWQ showed strong internal consistency and test-retest reliability (Meyer *et alii*, 1990). Some examples of the items are: "My worries overwhelm me," "Many situations make me worry," and "I am always worrying about something." The author of the current study translated the PSWQ in four stages, the first and second of which included a translation into Arabic by the author of the study, a back translation by an expert translator, and then reviewed by three judges (one with a doctorate and two with a master's degree in clinical psychology). The third stage involved administering the PSWQ to 20 university students and asking them to report any issues they had with understanding the items. The final stage involved administering the revised PSWQ to 100 King Saud University staff members. Spearman-Brown Coefficient for the split-half reliability was .91, while Cronbach's alpha was .88. In this study, Cronbach's alpha was .93.

Five-Facet Mindfulness Questionnaire (FFMQ; Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006). The FFMQ -nonjudging of inner experiences subscale was used to assess acceptance without judgment. The FFMQ comprises 39 items, reflecting five facets: non-reactivity to inner experience, observing, acting with awareness, describing, and non-judging inner experiences. This study used 8 items, each assessed on a 5-point Likert scale ranging from 1 (never or very rarely true) to 5 (very often or always true). The non-judging subscale score was calculated by adding the reverse items (3R, 10R, 14R, 17R, 25R, 30R, 35R, and 39R). Higher scores in this subscale indicate more significant levels of acceptance without judgment. The FFMQ demonstrated high validity reliability (Baer *et alii*, 2006). Examples of items are: "I criticize myself for having irrational or inappropriate emotions,"; "I tell myself I shouldn't be feeling the way I'm feeling,"; "I believe some of my thoughts are abnormal or bad," and "I shouldn't think that way". The Arabic version of the FFMQ translated by El-Beheiry and colleagues (2014) was used and its validity and reliability were satisfactory. In the present study, Cronbach's alpha for the non-judging subscale was .84.

Patient Health Questionnaire-9 (PHQ-9; Spitzer, Kroenke, & Williams, 1999). The PHQ-9 was utilized to examine depression symptoms. The PHQ-9 was developed to measure major depression disorder (MDD) by the Diagnostic and Statistical Manual of Mental Disorders-Fourth Edition (DSM-IV, APA, 1994). The PHQ-9 items are scored from 0 to 3, with five severity levels: none/minimal depression (0-4), mild depression (5-9), moderate depression (10-14), moderately severe depression (15-19), and severe depression (20–27). The PHQ-9 showed good diagnostic validity (Spitzer *et alii*, 1999). Examples of the PHQ-9 items are "Little interest or pleasure in doing things,"; "Feeling down, depressed, or hopeless," and "Trouble falling or staying asleep, or sleeping too much."

The Arabic version of PHQ-9 was used, which showed good psychometric properties in Saudi Arabia (AlHadi *et alii*, 2017). In this study, Cronbach's alpha was .90.

Generalized Anxiety Disorder-7 (GAD-7; Spitzer, Kroenke, Williams, & Löwe, 2006). The GAD-7 was used to assess the severity of general anxiety symptoms as defined by the DSM-IV (1994). The GAD-7 items are evaluated from 0 to 3, indicating four levels of severity: none (0-4), mild anxiety (5-9), moderate anxiety (10-14), and severe (15-21). The GAD-7 showed good diagnostic validity (Spitzer *et alii*, 2006). Examples of the GAD-7 items include "Feeling restless so that it is hard to sit still"; "Getting tired very easily"; and "Muscle tension, aches, or soreness". The Arabic version of GAD-7 showed adequate psychometric properties in Saudi Arabia (AlHadi *et alii*, 2017). Cronbach's alpha for GAD-7 in this study was .90.

Procedure

The study was conducted in Riyadh, Saudi Arabia. Non-clinical participants were recruited from the staff working at King Saud University. In contrast, clinical participants were recruited from the psychiatry departments at King Khalid Hospital, Medical City, King Saud University, and a private mental health clinic. Psychologists and psychiatrists were requested to screen their clients against the study's inclusion and exclusion criteria before informing them about the study. If a client agreed to participate in the study, an assistant researcher approached him/her to explain the study in detail and apply the measures after receiving written consent. Participants who preferred electronic versions of the study measures might also do so. Ethical permission was obtained before data collection.

The study was approved by the Committee of Health Sciences Colleges Research on Human Subjects, King Saud University College of Medicine (Ref. No. 20/0241/IRB) and the Standing Committee for Scientific Research Ethics, King Saud University (Ref. KSU-HE-22-444). All the procedures performed in this study were in accordance with the ethical standards of the relevant national and institutional committees on human research and with the Helsinki Declaration of 1964 and its later amendments. All participants were provided full informed consent.

Data Analysis

The characteristics of the entire sample and the two groups were described using Means and Standard Deviations for continuous variables and percentages for categorical variables. All variables were checked for normality of distribution; therefore, two nonparametric analyses were conducted since the skewness and kurtosis values were not normal. The first analysis was Spearman's correlation, which examined the strength and direction of correlations between study variables in both groups and across the entire sample. The second analysis employed the Mann-Whitney *U* test to assess ruminative brooding and reflective pondering, worry, acceptance without judgment, depression, and anxiety between groups.

As the sample size of this study was small, and the distribution was not normal, the bootstrapping macro process (Preacher & Hayes, 2008) was used to test the mediational effects. This approach was chosen because it can be used with small sample sizes and does not rely on the assumption of normality. It calculates the indirect effects (with a 95% Confidence Interval) of an independent variable (acceptance without judgment) on dependent variables (depression or anxiety) through suggested mediators (ruminative brooding, reflective pondering, and worry). The indirect effects were calculated using 5000 bootstrapping resamples. If the 95% Confidence Interval excludes zero, the indirect

effect is statistically significant at p <.05 (two-tailed). This indicates that the proposed mediating variable influences the relationship between the independent and dependent variables. The mediational analyses were conducted for the entire sample only, as the assumptions of the bootstrapping macroprocess, including homoscedasticity and linearity, were met. Since depression and anxiety are frequently associated, the mediational analyses were repeated after controlling for anxiety when the dependent variable was depression and after controlling for depression when the dependent variable was anxiety.

RESULTS

Table 1 shows the characteristics of the participants for the entire sample (n= 101) as well as for clinical (n= 33) and non-clinical (n= 68) groups. The sample's Mean (*SD*) age was 35 (7.8); 62% were female, 65% were married, 80% were employed, and 63% had a university degree. The clinical characteristics of the clinical group (n= 33)

Table 1. Demographic characteristics of the entire, clinical, and non-clinical samples.

		Total (N= 101)	Clinical Group (n= 33)	Non-clinical Group (n= 68)
Age, *M* (*SD*)		35 (7.8)	33.3 (10.4)	35.7 (6.2)
Gender, *n* (%)	Male	38 (38 %)	9 (27%)	29 (43%)
	Female	63 (62 %)	24 (73%)	39 (57%)
Marital status, *n* (%)	Single	32 (32 %)	14 (42%)	18 (27%)
	Married	66 (65 %)	19 (58%)	47 (69%)
	Divorced	3 (3%)	0	3 (4%)
Nationality, *n* (%)	Saudi	100 (99%)	32 (97%)	68 (100%)
	Egyptian	1 (1%)	1 (3%)	0
Employment status, *n* (%)	Employed	81 (80%)	15 (45%)	66 (97%)
	Unemployed	19 (19%)	17 (52%)	2 (3%)
	Private Job	1 (1%)	1 (3%)	0
Educational level, *n* (%)	Primary and Middle School	3 (3%)	2 (6%)	1 (2%)
	Secondary School	12 (12%)	6 (18%)	6 (9%)
	Diploma	5 (5%)	2 (6%)	3 (4%)
	University Degree	64 (63%)	17 (52%)	47 (69%)
	Master's degree	16 (16%)	5 (15%)	11 (16%)
	Doctoral Degree	1 (1%)	1 (3%)	0

are shown in Table 2. Almost one-half of the individuals had major depressive disorder (MDD), 42% had generalized anxiety disorder (GAD) and other anxiety problems, and 6% had co-morbid depression and anxiety. A third of the participants have medical problems. Eighty-eight percent of individuals received cognitive behavioral therapy (CBT), and seventy percent (70%) took psychiatric medication. Almost two-thirds of the participants were new to psychotherapy or were in their first or second sessions.

The descriptive statistics and intercorrelations for the study variables in the entire sample are presented in Table 3. The positive correlations between the RRS subscales, PSWQ, PHQ-9, and GAD-7 indicate that people scoring high on ruminative brooding, reflective pondering, and worry also scored high on depression and anxiety. The negative correlations between the FFMQ subscale (nonjudging) and the PHQ-9 and the GAD-7 indicate that those with high scores on acceptance without judgment had low levels of depression and anxiety. The FFMQ subscale (nonjudging) score was negatively related to the RRS subscales (ruminative brooding and reflective pondering), indicating that those who scored high on dispositional acceptance without judgment scored low on ruminative brooding and reflective pondering.

Table 4 displays descriptive statistics and intercorrelations for all variables in the clinical and non-clinical groups. For the clinical group, the mean of the PHQ-9 fell

Table 2. Clinical characteristics - *n* (%)- of Participants of Clinical Group (*n*= 33).

Type of psychological problems	Depression	16 (49%)
	Anxiety	14 (42 %)
	Mixed	2 (6%)
	Adjustment	1 (3%)
Type of Depression	MDD	14 (88%)
	Depressive Symptoms	2 (12%)
	Other	0
Type of Anxiety Problems	GAD	10 (71%)
	Panic Attack	1 (7 %)
	Other Anxiety Problems	3 (21%)
Other Psychological Problems	Yes	4 (12%)
	No	29 (88 %)
Other Physical Problems	Yes	12 (36%)
	No	21 (64%)
Psychotherapy	Yes	33 (100%)
	No	0
Type of Psychotherapy	CBT	29 (88%)
	Family Therapy	2 (6%)
	Missing	2 (6%)
Antidepressants	Yes	23 (70%)
	No	6 (18%)
	Missing	4 (12%)
Type of cases	New	12 (36%)
	Follow-up	21 (64%)

Notes: MDD= Major Depression Disorder; GAD= Generalised Anxiety Disorder; CBT= Cognitive Behavioural Therapy.

Table 3. Descriptive statistics and intercorrelations for all variables in the entire sample.

	M (*SD*)	1- PHQ-9	2- GAD-7	3- RRS	4- RRS	5- PSW
1- PHQ-9	10 (6.6)	-				
2- GAD-7	8 (5.6)	.81**	-			
3- RRS (Ruminative brooding)	10 (4.4)	.53**	.60**	-		
4- RRS (Reflective pondering)	10 (4.1)	.59**	.53**	.76**	-	
5- PSWQ	53 (13.4)	.65**	.69**	.58**	.40**	-
6- FFMQ (Non-Judging Subscale)	22 (6.9)	-.36**	-.35**	-.38**	-.36**	-.32**

Notes: FFMQ= Five-Facets Mindfulness Questionnaire; GAD-7= Generalized Anxiety Disorder-7; PHQ-9 Patient Health Questionnaire-9; RRS= Rumination Response Scale; PSWQ: Penn State Worry Questionnaire; *= <.05, **= *p* <.01.

Table 4. Descriptive statistics and intercorrelations for all variables in the clinical and non-clinical group.

	Clinical Group (*n*= 33)						Non-Clinical Group (*n*= 68)					
	M (SD)	1	2	3	4	5	*M (SD)*	1	2	3	4	5
1- PHQ-9	15 (6.8)	-					7 (5.1)	-				
2- GAD-7	12 (5.2)	.72**	-				6 (5.1)	.70**	-			
3- RRS (Ruminative brooding)	13 (3.7)	.36*	.44*	-			9 (4.0)	.43**	.53**	-		
4-RRS (Reflective pondering)	12 (3.7)	.36*	.27	.62**	-		8 (3.7)	.52**	.42**	.73**	-	
5-PSWQ	63 (11.8)	.45*	.30	.26	.07	-	48 (11.0)	.59**	.68**	.30*	.30*	-
6-FFMQ (Non-Judging Subscale)	19 (6.4)	-.07	-.25	-.32	-.46**	-.06	24 (6.6)	-.33**	-.24*	-.18	-.15	-.18

Notes: FFMQ= Five-Facets Mindfulness Questionnaire; GAD-7= Generalized Anxiety Disorder-7; PHQ-9= Patient Health Questionnaire-9; RRS= Rumination Response Scale; PSWQ: Penn State Worry Questionnaire; *= *p* <.05, **= *p* <.01.

within the moderately severe depression level, while the mean of the GAD-7 fell within the moderate anxiety level. The means of the RRS subscales (ruminative brooding and reflective pondering) and the PSWQ were all above average in the clinical group. In contrast, the mean of the FFMQ-nonjudging subscale was average. For the non-clinical group, the means of the PHQ-9 and GAD-7 fell within the mild depression and anxiety levels. The means of the RRS subscales (ruminative brooding and reflective pondering)

and the PSWQ were all below average, while the mean of the FFMQ-nonjudging subscale was above average.

Mann-Whitney *U* test was conducted to determine whether there were differences between the two groups in the study variables. The results showed that the clinical group was significantly higher than the non-clinical group for PHQ-9 (U= 451, p <.001), GAD-7 (U= 522, p <.001), RRS-ruminative brooding (U= 522, p <.001), RRS-reflective pondering (U= 515, p <.001), PSWQ (U= 357, p <.001), and a lower mean rank for FFMQ- nonjudging (U= 668, p <.001), indicating that participants in the clinical group had higher levels of depression, anxiety, ruminative brooding, reflective pondering, worry, and a lower level of acceptance without judgment compared with the non-clinical group.

Females scored higher on the GAD-7 (U= 891, p= .04) and the PSWQ (U= 848, p= .03) than males, indicating that females were more anxious and concerned. However, there were no significant differences between men and women regarding depression, anxiety, ruminative brooding, reflective pondering, and acceptance without judgment.

In the entire sample, reflective pondering and worry partially mediated the relationship between acceptance without judgment and depression, with indirect effects of (-.2362 and -.0260; -.2440 and -.0531), respectively, whereas ruminative brooding did not. However, none of the variables showed mediational effects after controlling for anxiety. On the other hand, worry partially mediated (-.2558 and -.0587) the relationship between acceptance without judgment and anxiety. Worry, however, had no mediational effect after controlling for depression.

Discussion

The first goal of this study was to see if there were any significant associations between acceptance without judgment, depression, anxiety, ruminative brooding, reflective pondering, and worry in Saudi clinical and non-clinical samples. The second goal was to determine whether there were differences between people with or without major depression or anxiety problems in acceptance without judgment, ruminative brooding, reflective pondering, and worry. The third goal was to see if ruminative brooding, reflective pondering, and worry would mediate the relationships between acceptance without judgment and depression and anxiety in the sample.

Regarding the first goal, the results showed that ruminative brooding, reflective pondering, and worry were all linked to depression and anxiety. Thus, these results are in line with the previous studies that highlighted the strong relationship between depression and anxiety and repetitive negative processes, including rumination and worry, in Western countries (Fresco *et alii*, 2002; McLaughlin & Nolen-Hoeksema, 2011; Muris, *et alii*, 2005; Wisco *et alii*, 2013) and Arab countries (Al-khodair, 2014; Thomas & Altareb, 2012) On the other hand, the acceptance without judgement score was negatively associated with low scores on depression and anxiety, which is consistent with the previous studies (Baer *et alii*, 2008; Barcaccia *et alii*, 2019; Cash & Whittingham, 2010; Desrosiers, Klemanski, *et alii*, 2013; Petrocchi & Ottaviani, 2016; Sampath *et alii*, 2019).

Regarding the second goal, the results found that participants in the clinical group showed a lower level of acceptance without judgment and higher levels of ruminative brooding, reflective pondering, and worry, which is consistent with the previous studies that studied people with clinical depression and anxiety problems (Arditte Hall *et alii*, 2019; D'Avanzato *et alii*, 2013; McEvoy *et alii*, 2013). In terms of the different types of rumination, people with major depression and anxiety problems in the clinical group

had more brooding rumination than those in the non-clinical group, which is in line with previous research (i.e., Arditte Hall *et alii*, 2019; Schoofs *et alii*, 2010). Moreover, the results showed that higher reflective pondering was related to depression, which is in line with (Arditte & Joormann, 2011) and inconsistent with Schoofs *et alii* (2010), who found reflective pondering could not predict depression.

Regarding the third goal, the mediational analyses showed that, without controlling for anxiety, reflective pondering and worry partially mediated the relationship between acceptance without judgment and depression, while ruminative brooding did not, which is inconsistent with Alleva *et alii* (2014). On the other hand, worry had a partial effect as a mediator regarding the correlation between acceptance without judgment and anxiety before controlling for depression only. In contrast, reflective pondering and ruminative brooding did not show any effects. However, research needs to be conducted to examine whether reflective pondering can be considered an adaptive technique, as suggested by (Joormann *et alii*, 2006; Treynor *et alii*, 2003).

The results showed that repetitive negative processes such as reflective pondering and worry played a role in the relationship between acceptance without judgment and depression and anxiety in a Saudi sample. This could mean that such cognitive processes can be considered when adapting mindfulness interventions for Arab and Saudi societies. However, more research is needed to determine what role negative thinking and mindfulness skills play in understanding depression and anxiety in Arab and Saudi populations.

Regarding the strengths of this study, it is the first study using clinical and non-clinical samples in Arab and Saudi societies to examine three repetitive negative processes (ruminative brooding, reflective pondering, and worry) and their relationships with acceptance without judgment, depression, and anxiety, as well as the roles of such processes as mediators. However, some limitations should be addressed. First, recruiting more participants experiencing major depression and anxiety would be helpful. Second, using laboratory methods to assess repetitive negative processes would help assess such processes. Finally, other time points for assessing mediational effects and other mediational methods should be considered.

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