

The Association between Ruminative Thoughts and Mindfulness among Patients with Major Depressive Disorder: A Cross-sectional Study¹

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Extended Abstract

Introduction Addressing depression requires a comprehensive approach. Investigating the relationship between ruminative thought and mindfulness in patients with major depressive disorder is crucial.

Objective This study aimed to investigate the correlation between ruminative thoughts and mindfulness in patients with major depressive disorder in the community.

Design A cross-sectional study

Methodology Participants included 75 patients diagnosed with major depressive disorder in the maintenance phase of antidepressant therapy, purposively selected from a psychiatric hospital and community hospitals in a northeastern province of Thailand. Data were collected using questionnaires consisting of demographic and clinical characteristics, as well as assessments using Beck's Depression Inventory, Ruminative Response Scale, and Philadelphia Mindfulness Scale. Data were analyzed using descriptive statistics and Pearson's Product Moment Correlation Coefficient.

Results The majority of participants were female, with an average age of 51.08 years (SD = 15.46). Depressive symptoms over the past two weeks were classified as minimal (33.3%), mild-moderate (25.3%), moderately severe (28.0%), and severe (13.3%). The results indicated a significant positive correlation between depression severity and overall ruminative thought and its dimensions ($r = .562$, $p < .001$). Additionally, there were significant positive correlations between depression severity and overall and all dimensions of ruminative thoughts (brooding, reflection, and depression-related items) ($r = .441, .483, .592$, $p < .001$, respectively). Furthermore, a significant negative correlation was found between ruminative thoughts and mindfulness ($r = -.292$, $p = .012$). However, no correlation was found between depression and mindfulness.

Recommendation Patients with major depressive disorder undergoing antidepressant treatment typically have high ruminative thoughts. The results of this study provide basic information for predictive research that could lead to the development of community-based therapeutic programs for patients with depression, aimed at reducing ruminative thoughts and depression, resulting in preventing recurrent depression.

Keywords ruminative thoughts/ mindfulness/ depression/ patients with major depressive disorder

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ความสัมพันธ์ระหว่างความหมกมุ่นครุ่นคิดและการมีสติ ในผู้ป่วยโรคซึมเศร้าที่อาศัยในชุมชน: การศึกษาแบบภาคตัดขวาง¹

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บทคัดย่อขยาย

บทนำ การแก้ไขปัญหาภาวะซึมเศร้าต้องใชการดูแลที่ครอบคลุมทุกมิติ การทำความเข้าใจความสัมพันธ์ระหว่างความหมกมุ่นครุ่นคิดและการมีสติในผู้ป่วยซึมเศร้าเป็นสิ่งสำคัญ

วัตถุประสงค์ เพื่อศึกษาความสัมพันธ์ระหว่างความหมกมุ่นครุ่นคิดและการมีสติในผู้ป่วยโรคซึมเศร้าที่อาศัยในชุมชน

การออกแบบการวิจัย การศึกษาแบบภาคตัดขวาง

วิธีดำเนินการวิจัย กลุ่มตัวอย่างเป็นผู้ป่วยที่ได้รับการวินิจฉัยโรคซึมเศร้า มีอาการอยู่ในระยะคงที่ และกำลังรับการรักษาด้วยยาต้านเศร้าจำนวน 75 ราย ที่มารับบริการในโรงพยาบาลจิตเวชแห่งหนึ่ง และโรงพยาบาลชุมชนในจังหวัดทางภาคตะวันออกเฉียงเหนือ เก็บรวบรวมข้อมูลโดยใช้แบบสอบถาม ข้อมูลส่วนบุคคลและข้อมูลทางคลินิก รวมทั้งการประเมินภาวะซึมเศร้าของเบ็ค การประเมินความหมกมุ่นครุ่นคิด และประเมินการมีสติของฟิลาเดลเฟีย วิเคราะห์ข้อมูลด้วยสถิติเชิงพรรณนาและสหสัมพันธ์ของเพียร์สัน

ผลการวิจัย กลุ่มตัวอย่างส่วนใหญ่เป็นเพศหญิง มีอายุเฉลี่ย 51.08 ปี (SD = 15.46) ในช่วงสองสัปดาห์ที่ผ่านมา มีภาวะซึมเศร้าระดับน้อย ร้อยละ 33.3 ระดับปานกลาง ร้อยละ 25.3 ระดับมาก ร้อยละ 28.0 และระดับรุนแรง ร้อยละ 13.3 นอกจากนี้ ระดับความรุนแรงของภาวะซึมเศร้ามีความสัมพันธ์ทางบวกอย่างมีนัยสำคัญ ($p < .001$) กับความหมกมุ่นครุ่นคิดโดยรวมและรายด้าน (การครุ่นคิดวิตกกังวล การสะท้อนความคิด และองค์ประกอบภาวะซึมเศร้า) ($r = .562, .441, .483, .592$ ตามลำดับ) และพบว่าความสัมพันธ์ทางลบของความหมกมุ่นครุ่นคิดกับการมีสติ ($r = -.292, p = .012$) อย่างไรก็ตามไม่พบความสัมพันธ์อย่างมีนัยสำคัญของภาวะซึมเศร้ากับระดับการมีสติ

ข้อเสนอแนะ ผู้ป่วยที่เป็นโรคซึมเศร้าและกำลังรับการรักษาด้วยยาต้านซึมเศร้ามักมีแนวโน้มที่จะมีความหมกมุ่นครุ่นคิดสูง ผลการศึกษานี้เป็นข้อมูลพื้นฐานในการศึกษาเชิงทำนายซึ่งจะนำไปสู่การพัฒนากิจกรรมบำบัดในชุมชนสำหรับผู้ป่วยโรคซึมเศร้าเพื่อลดความหมกมุ่นครุ่นคิดและอาการซึมเศร้า ทั้งนี้เพื่อป้องกันการเกิดซ้ำของโรคซึมเศร้า

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Introduction

Depression is a prevalent mental health disorder that affects over 264 million people worldwide.¹ The COVID-19 pandemic has exacerbated the prevalence of depression, with rates ranging from 7.45% to 48.30%.² This is markedly seven times higher than the global estimate of 3.44% in 2017.² Major Depressive Disorder (MDD) is characterized by various behavioral, emotional, and cognitive symptoms, including psychomotor agitation or retardation, insomnia or hypersomnia, changes in appetite, fatigue, feelings of guilt and worthlessness, and thoughts of suicide.³

Depression is different from a normal mood disorder. It is a serious condition marked by recurring episodes that range from moderate to severe, leading to significant suffering and major disruptions in daily life.⁴ Additionally, distinctive symptoms include ruminative thoughts, where people repetitively consider and review autobiographical information with a negative focus related to past and present issues, as well as attentional difficulties characterized by an inability to maintain focus, concentration, or sustained attention.^{3,5} These symptoms reflect cognitive deficits, leading to increased disability and a decreased quality of life.^{6,7} As a result, it has become a substantial public health concern.⁸

Ruminative thoughts, recognized as a common cognitive symptom in people with depression, involve the repetitive and distressing contemplation of negative aspects of personal experiences.⁹ This cognitive style is deemed maladaptive, particularly within the context of depression.¹⁰ People with depression often engage

in ruminative thoughts, focusing on past experiences with negative content in an attempt to find solutions and prevent future errors.¹⁰ The challenge of ruminative thoughts lies in their capacity to intensify negative emotions and impede effective problem-solving and adaptive behaviors.^{11,12} Many studies indicate a link between major depressive disorder (MDD) and deficits in cognitive control processes, particularly those involved in regulating conflict.^{13,14} Cognitive control includes the ability to flexibly manage behavior and thoughts towards goals, while resisting distractions.¹⁵ Recent studies indicate that excessive ruminative thoughts in patients with MDD are linked to a decline in cognitive control.¹⁶ These control processes play a crucial role in healthy cognition, including delayed gratification, impulse control, self-reflection, and managing intrusive negative thought patterns. Neuroimaging research, both structural and functional, suggests that the brain's prefrontal and anterior cingulate regions play a role in cognitive control.¹⁷ Despite this, the temporal aspects of conflict monitoring and cognitive control, particularly in the context of ruminative thoughts, are not yet fully described.

Kabat-Zinn describes mindfulness as awareness that emerges from attention to the present moment without judgment.¹⁸ Recognized as an adaptive skill, mindfulness fosters a non-judgmental awareness of the current moment.¹⁹ It creates cognitive space, supporting in effective problem-solving and serving as a preventive measure against depression.¹⁹ Previous research has demonstrated that mindfulness functions as a protective factor against depression and lowers the risk of

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depressive relapse.¹⁹⁻²¹ Additionally, it promotes both physical and psychological well-being, enhancing insight, attention, and acceptance,²² leading to an increased sense of peace and happiness in people experiencing depression.²²

Ruminative thoughts and mindfulness play crucial roles in understanding and addressing depression. The connection between depression, ruminative thoughts, and mindfulness is well-supported by research, and numerous studies have indeed indicated that people with depression often exhibit high levels of ruminative thoughts and lower levels of mindfulness.^{10,23,24} The relationship between mindfulness, ruminative thoughts, and depressive relapse is multifaceted and involves various psychological and neurobiological mechanisms.²³ Although it is well-established that greater mindfulness correlates with reduced ruminative thoughts and a decreased risk of depressive relapse, the precise mechanisms and pathways involved remain subjects of ongoing research.²³

While research on the relationship between ruminative thoughts and mindfulness among patients with major depression is growing, there is still a need for more studies^{10,23,24}, particularly in specific cultural contexts such as Asian populations. The cultural background shapes how mental health conditions are viewed and expressed.²⁵ For instance, in many non-Western cultures, mental illness may be understood through spiritual or religious lenses rather than medical ones.²⁵ This can lead to different expressions of symptoms and varying attitudes towards seeking help.²⁵ For example, some cultures

may emphasize community or familial involvement in mental health issues, whereas Western approaches often focus on individual pathology.²⁵

Therefore, this cross-sectional study design was employed to assess the relationship between rumination and mindfulness in patients with major depressive disorder living in Thailand. Through comparative analysis with studies conducted in various other countries, the goal is to offer a holistic comprehension of the interplay between rumination and mindfulness in depressed patients within the unique cultural context of Thailand. The valuable insights derived from this research can potentially contribute to the design of targeted psychotherapy programs aimed at mitigating rumination and fostering mindfulness among patients with depression, extending to the maintenance phase of antidepressant treatment.

Objective

To examine the relationship between ruminative thoughts and depression among community – dwelling adults and older adults with major depressive disorder

Hypothesis

There is a significant negative association between ruminative thoughts and mindfulness among patients with major depressive disorder in the community.

Conceptual Framework

The conceptual framework describes that mindfulness directly affects ruminative thoughts,

and indirectly affects depression via ruminative thoughts²⁶ (Figure 1). These linkages will later provide clear evidence for the mechanisms through

which mindfulness-based interventions reduce depression, emphasizing the crucial role of ruminative thinking as a key component of the treatment strategy.²⁷

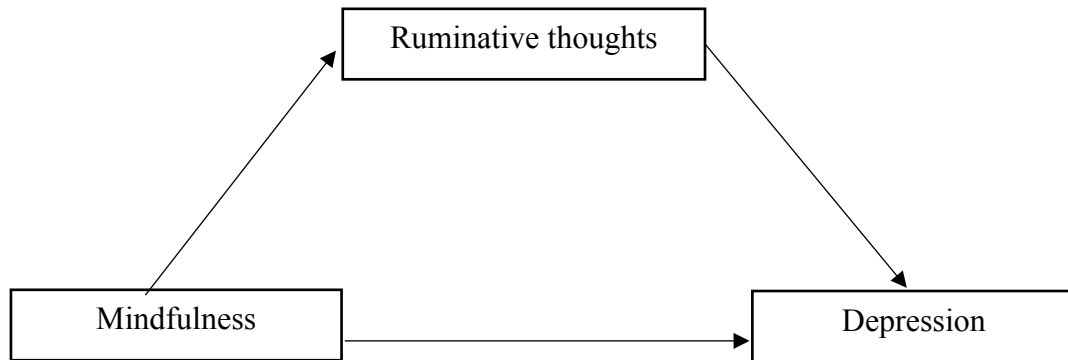


Figure 1 Conceptual Framework

Methods

This study employed a descriptive correlational design.

Sample and setting

Through purposive sampling, the participants were 75 community-dwelling adults with major depressive disorder, diagnosed by psychiatrists at Prasimahabhodi Psychiatric Hospital in Ubon Ratchathani province, who were in the maintenance phase of their medication regimen. The inclusion criteria included 1) aged 18 years and older, 2) a history of being diagnosed with major depressive disorders according to the diagnostic criteria in the DSM-V, 3) having normal and mild depressive symptoms using the 9-question assessment, and 4) voluntary participation. The exclusion criteria included: 1) comorbidities such as dementia, Alzheimer's disease, psychosis, or substance abuse related to alcohol and/or drugs, and 2) a high risk of suicide.

The sample size was determined using the Epi Info 7 program, with an expected frequency of 50%, an acceptable error of 10%, and a confidence level of 95%. The minimum required sample size was 64. Finally, 75 patients were recruited to account for potential dropouts and strengthen the study results.²⁸

Instruments

1. The demographic and clinical characteristics of patients with major depressive disorder developed by the researchers included gender, age, marital status, education level, occupation, monthly income, participants' history of depression, and the severity of depressive symptoms.

2. The Beck Depression Inventory-IA (BDI-IA) developed by Beck, and Steer,²⁹ was a self-report rating inventory comprising 21 items designed to assess attitudes and symptoms of depression. The Thai version of the BDI-IA, translated and validated by Sriyong,³⁰ demonstrated robust psychometric properties,

revealing a content validity of .84 and a reliability with Cronbach's Alpha coefficient of .92. The inventory employs a 4-point Likert scale (0-3), with total scores ranging from 0 to 63. The interpretation was categorized into five levels: normal (0-9), minimal depression (10-15), mild-moderate depression (16-19), moderate-severe depression (20-29), and severe depression (30-63).

3. The Ruminative Response Scale (RRS), originally developed in English by Nolen-Hoeksema and Morrow,³¹ underwent translation into Thai by Thanoi.³² Comprising 22 items, the RRS aimed to assess ruminative tendencies. The scale was divided into three dimensions: brooding, reflection, and depression. On a 4-point Likert scale (1-4), higher RRS scores indicate elevated rumination levels. The Thai version of the RRS demonstrated robust psychometric properties, evidenced by a content validity index (CVI) of .95 and strong internal consistency ($\alpha=.90$) with positive correlations with emotional distress ($r=.74, p<.01$) and suicidal behaviors ($r=.46, p<.01$).

4. The Philadelphia Mindfulness Scale (PMS) was originally developed and validated in English by Cardaciotto, Herbert,³³ underwent translation and was evaluated in the Thai version by Silpakit, Wisajun.³⁴ Comprising 20 items, the PMS aimed to assess mindfulness and was further categorized into two subscales: awareness and acceptance. With a 5-point Likert scale (1 = never, 2 = rarely, 3 = sometimes, 4 = often, 5 = very often) and a total score ranging from 20 to 100, higher scores on the PMS indicated heightened levels of mindfulness.

The Thai version of the PMS demonstrated excellent psychometric properties, with strong test-retest reliability (awareness $\alpha=.88$, acceptance $\alpha=.89$) and a factor structure accounting for 49% of the variance.

Ethical consideration

This study followed the ethical guidelines of the Declaration of Helsinki and received approval from the Research Ethics Committee of Prasrimahabodi Psychiatric Hospital (Approval no. COA. 003/2563). It was part of the main project on mindfulness-based cognitive therapy for depressive disorders. Written consent was obtained after explaining the study's objectives and procedures. Participants were assured of confidentiality and could withdraw at any time. Data were stored securely and anonymously, with a unique identifier for each participant. After five years, data will be permanently deleted.

Data Collection

Data from 75 patients with major depressive disorders were gathered during the period from June 1st to August 31st, 2020, from Prasrimahabodi Psychiatric Hospital and General Hospitals in Ubon Ratchathani Province. The research team was responsible for selecting the participants. Research assistants, who were trained by the research team, collected data from participants at the Health Promoting Hospitals near their homes. Each participant was instructed to complete the four questionnaires within 15-20 minutes, adhering to standardized instructions. The researchers and research assistants thoroughly collected and reviewed the questionnaires, addressing any difficulties encountered by the participants.

Data Analysis

Descriptive statistics, including frequency, percentage, mean, and standard deviation, were employed to analyze the data. To explore the association between ruminative thoughts and mindfulness among the participants, Pearson's product-moment correlation coefficient was utilized. Statistical significance was set at a p-value of .05. Testing the assumption revealed that the data were normally distributed.

Results

Most participants were female, with an average age of 51.08 years (SD = 15.46). More than half were married (57.3%) and worked in agriculture or farming (74.7%). Around 52.0% had never been admitted to a psychiatric hospital. Depressive symptoms in the past two weeks were reported as minimal (33.3%), mild (25.3%), moderate (28.0%), and severe (13.3%), as presented in Table 1.

Table 1 Demographic and clinical characteristics of the participants (n=75)

Variables	n (%)
Gender	
Male	13(17.3)
Female	62(82.7)
Age range in years (M, SD)	18–79 (51.08, 15.46)
Marital status	
Single	17(22.7)
Married	43(57.3)
Windowed	7(9.3)
Divorced/ Separated	8(10.7)
Education level	
Primary school	42(56.0)
Junior high school/ High school	20(26.6)
Vocational certificate/ high vocational certificate	6(8.0)
Bachelor's degree	6(8.0)
Other	1(1.3)
Occupation	
Business owner/Government officer	12(16.0)
Employee/ Farmer	56(74.7)
Unemployed	21(28.0)
Income (baht)	
Less than 5,000	50(66.7)
5,000–10,000	7(9.3)
10,001–15,000	6(8.0)
More than 15,000	6(8.0)
None	6(8.0)
Admission/Admission experience or history of Major Depressive Disorders	
Yes	36(48.0)
No	39(52.0)
Severity of depression	
Minimal	25(33.3)
Mild-moderate	19(25.3)
Moderate-severe	21(28.0)
Severe	10(13.3)

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The correlational analysis showed a positive correlation between depression and overall ruminative thoughts ($r = .562, p < .001$). Additionally, there were positive correlations between depression and dimensions of ruminative thoughts including

brooding ($r = .441, p < .001$), reflection ($r = .483, p < .001$), and depression-related items ($r = .592, p < .001$). However, no correlation was found between depression and mindfulness (Table 2).

Table 2 Correlations between ruminative thoughts, mindfulness, and depression in the participants ($n=75$)

Variables	Depression	
	r	p-value
Overall ruminative thoughts	.562	<.001
Brooding	.441	<.001
Reflection	.483	<.001
Depression	.592	<.001
Overall mindfulness	-.172	.157
Awareness	.041	.737
Acceptance	-.152	.202

r, Pearson correlation coefficient

Overall ruminative thoughts exhibited a significant negative association with mindfulness ($r = -.292, p = .012$). The dimensions of ruminative thoughts, including reflection ($r = -.241, p = .036$) and depression-related items

($r = -.313, p = .007$), demonstrated negative correlations with mindfulness. However, no significant relationship was observed between the brooding and mindfulness, as shown in Table 3.

Table 3 Correlations between ruminative thoughts and mindfulness in the participants ($n=75$)

Ruminative thoughts	Mindfulness	
	r	p-value
Overall	-.292	.012
Brooding	-.221	.064
Reflection	-.241	.036
Depression	-.313	.007

r, Pearson correlation coefficient

Discussion

This study revealed positive correlations between depression and dimensions of ruminative thoughts, including brooding, reflection, and depression-related items. This indicates that increased depression is associated with increased ruminative thoughts. The participants with increased depression tended to engage more in brooding and reflective rumination,

as well as depression-related thoughts. These findings emphasize the interconnectedness between depressive symptoms and ruminative thoughts process, highlighting the importance of ruminative thoughts toward reducing depression. These findings align with prior research,¹⁰ emphasizing ruminative thoughts as a substantial psychosocial factor influencing depressive symptoms.^{10,35} The response styles theory further supports the notion

that ruminative thoughts are a prevalent form of negative cognition in patients with depression.¹⁰

Patients with major depressive disorders are prone to persistent negative and self-defeating thoughts fueled by the repetitive and intrusive focus on negative experiences and emotions.^{12,36} Ruminative thoughts play a central role in depressive symptoms, affecting not only new and longstanding patients with depression but also those in the maintenance phase of antidepressant treatment.^{12,36} It influences residual depressive symptoms and predicts the relapse or recurrence of depressive disorders.³⁷ Patients with major depressive disorders often engage in ruminative thoughts about stressful life events, seeking resolutions or attempting to prevent negative outcomes based on past experiences.¹⁰

These findings are consistent with a previous study conducted in Thailand, which observed that Buddhist counseling influenced ruminative thoughts and mindfulness among patients with major depressive disorders.³⁸ Participants who participated in mindfulness programs were less likely to have ruminative thoughts. Consequently, promoting mindfulness and awareness among patients with depression may contribute to a reduction in ruminative thoughts.

Previous research has indicated that mindfulness meditation can be beneficial for patients with major depressive disorders who engage in ruminative thoughts, facilitating improvements in self-awareness, present-moment attention, and self-regulation.¹⁹⁻²² The data supporting the relationship between these

variables primarily emphasizes correlation, without clearly describing the explicit mechanism of the linkage. Mindfulness meditation is associated with enhanced physical and mental well-being, and people with depression have reported experiencing peacefulness and happiness following mindfulness practice.²² Moreover, mindfulness-based interventions have demonstrated effectiveness in reducing risk factors and preventing depressive relapse.²¹

However, the present study did not identify a significant correlation between mindfulness and depression in the participants. It is crucial to consider cultural and contextual influences on mindfulness, as the structure of mindfulness instruments plays a pivotal role in accurately measuring and accessing various constructs across different cultures.³⁸ There are approximately ten types of mindfulness scales available.³⁹ The Philadelphia Mindfulness Scale (PMS), originally developed and tested in English by Cardaciotto, Herbert³³, was translated and evaluated in Thai version.³⁴ This suggests that mindfulness in Thais may be influenced by cultural and contextual factors that differ from those in other countries. Future studies in Thailand should consider employing various mindfulness scales to gain a more comprehensive understanding.

Overall ruminative thoughts and their specific dimensions, such as reflection and depression-related items, showed a statistically significant negative relationship with overall mindfulness. These results align with a previous study,⁴⁰ which found that increased levels of mindfulness were linked to reduced ruminative

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thoughts, leading to enhanced mindful living and more effective stress response, as well as a study explored the relationship between ruminative thoughts and mindfulness in 150 depressed patients in a psychiatric hospital.¹⁰ The study unveiled that patients with severe depressive symptoms were more likely to exhibit higher ruminative thoughts but lower levels of mindfulness.¹⁰ This suggests an inverse relationship between rumination and mindfulness.

Previous studies conducted in Thailand also reported that mindfulness meditation contributes to a reduction in ruminative thoughts.⁴¹ Thai depressed patients engaging in mindfulness self-compassion programs experienced a decline in rumination levels.³⁹ These findings collectively support the idea that mindfulness practices may play a role in mitigating ruminative thoughts among patients with depression.

Limitations

This study utilized a cross-sectional design, which entails specific limitations. Evaluating ruminative thoughts and mindfulness at a single time point introduces the potential for transient psychological factors to have influenced participants' thoughts and emotions during the data collection process. Additionally, the study setting was limited in a single province, thereby restricting generalizability of the findings.

Recommendation

This study provides an evidence supporting the link between ruminative thoughts and depression in patients with depressive disorders. It highlights

the importance of identifying ruminative thoughts as a predictor of relapse or recurrence in depression. Future research should aim at predictive studies that can inform the development of programs designed to reduce ruminative thoughts and enhance mindfulness.

Acknowledgment

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