A Study of Psychometric Properties of Difficulty in Emotion Regulation Scale – Thai Version among Thai Population

Thanayot Sumalrot, Ph.D., Jeeradetch Ngamseesan, M.Sc.*, Keerati Pattanaseri, M.D.

Department of Psychiatry, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand.

ABSTRACT

Objective: Individuals with psychiatric disorders are found to struggle with emotion regulation, which is considered a transdiagnostic factor. However, due to a limitation in the assessment of emotion regulation in Thailand, this study aimed to translate the Difficulty in Emotion Regulation Scale (DERS) into Thai (DERS-Thai) and evaluate its psychometric properties.

Materials and Methods: The DERS-Thai was initially translated by one of the researchers before being re-reviewed. A pre-testing phase was then conducted to preliminarily evaluate the psychometric properties of the DERS-Thai. Subsequently, the testing phase involved 446 participants who completed an online questionnaire platform containing demographic data, DERS-Thai, the Emotion Regulation Scale (ERQ), and the Depression Anxiety Stress Scale 21 (DASS-21). The factor structure was then evaluated, along with its concurrent and criterion validity, as well as its internal consistency.

Results: DERS-Thai demonstrated acceptable content validity (I-CVI = 0.8 to 1.0, S-CVI/Ave = 0.85). In the testing phase with 446 participants (mean age = 29.19, SD = 8.50), predominantly female (81.8%), and mostly residing in central Thailand (81.31%), the original model did not fit well. After modification, fit indices were improved. DERS-Thai showed a negative correlation with ERQ and a moderate to strong correlation with DASS-21. Known-group analysis revealed significant differences in DERS-Thai scores between DASS-21 groups (p-value < 0.001). The scale exhibited excellent internal consistency (α = 0.94, ω = 0.96).

Conclusion: The DERS-Thai has demonstrated appropriate psychometric properties for assessing emotion regulation skills in individuals.

Keywords: Emotion regulations; psychometric; psychological tests; questionnaire (Siriraj Med J 2024; 76: 557-566)

INTRODUCTION

Psychiatric conditions encompass a wide array of challenges that affect an individual's functioning in academic, work, and social settings. In particular, there has been growing concerns about the increasing prevalence of mood (affective) disorders.[1,2] According to the World Health Organization (WHO), the global prevalence estimate for Major Depressive Disorder was approximately 280 million.[3] Psychiatric conditions arise from multifactorial causes, and research indicates that emotion regulation problems are one of the contributing factors.[4]

Emotion regulation refers to an individual's capacity to be aware of, identify the causes, and manage the timing of their emotional experiences, along with responding effectively to those emotions. It is considered a transdiagnostic factor because people facing various psychiatric conditions often struggle to regulate their emotions, leading to

maladaptive coping strategies such as substance use disorder, social anxiety disorder, and borderline personality disorder. Maladaptive emotion regulation, as highlighted in studies, includes rumination, avoidance, and suppression, contributing to psychopathology.[4-8] Numerous studies have shown that people with psychiatric disorders face challenges in regulating their emotions, whether due to a lack of effective strategies or difficulty in engaging in adaptive behavior.[9-13]

Despite the attention given to emotion regulation in the research field, there remains a limited number of studies in Thailand, particularly in the area of assessment tools to assess emotion regulation. The Emotion Regulation Questionnaire has been used dominantly in Thai research as the gold standard assessment.[14-16] Although there have been studies aiming to develop assessment tools for emotion regulation, these have been limited to undergraduate students in terms of sample and objectives.[17,18] Therefore, the objective of this study was to translate the Difficulty in Emotion Regulation Scale into Thai and examine its psychometric properties in the Thai population.

MATERIALS AND METHODS

This study was carried out after receiving ethical approval from the Siriraj Institutional Review Board (SIRB), Faculty of Medicine Siriraj Hospital (COA no. Si 273/2023). The study design was cross-sectional.

Participants

The population included Thai individuals aged 18 to 60 years who could read Thai in a comprehensive way, who lived in Thailand, and who did not undergo psychological treatment or were diagnosed with any psychological condition. Samples were included through social networks and data was collected using an online platform. Participants who responded to the questionnaire randomly or incompletely (more than 10%), those currently undergoing treatment or diagnosed, or those who did not live in Thailand were excluded from the study. The study was conducted in two separate phases: the pre-testing phase and the testing phase. The pre-testing phase involved 30 samples for the preliminary evaluation of the DERS-Thai scale. The testing phase required a minimum of 403 participants, according to the sample size calculation for the structural equation model by Soper.[19] With a 20% increase in the response rate, the final sample size was 483.

Procedure

The recruitment process involved posting advertisements and invitations to participate in the study on social media platforms for instance Line, Facebook, and Instagram applications. To mitigate selection bias and ensure a more representative sample, efforts were made to reach diverse groups, including different age ranges, genders, educational levels, and regions of Thailand. All participants were informed in writing, covering the details of the study, possible risks, and benefits. Participants had to provide their consent before proceeding to the questionnaire sections. After completing the questionnaires, all participants received information on emotion regulation, mental health support contacts, and questionnaire results. This study was conducted in two phases: the pre-testing phase and the testing phase. The pre-testing phase was conducted for the initial evaluation of the DERS-Thai psychometric properties, while the comprehensive evaluation was held in the testing phase.

Measurement

The online questionnaire was constructed of various sections as follows: the demographic questionnaire, DERS-Thai, ERQ, and DASS-21. Demographic data was collected including the age and sex of the participant, province of living, educational level, marital status, and history of medical conditions both physical and psychological.

The Difficulty in Emotion Regulation Scale (DERS) consists of 36 self-report items assessing the multidimensional aspects of emotion regulation capacities, including Nonacceptance, Goals, Impulse, Awareness, Strategies, and Clarity subscales. DERS was developed by Gratz and Roemer (2004). The scale is rated on a 5-point Likert scale (1 = 'Almost never', 2 = 'Sometimes', 3 = 'Half of the time', 4 = 'Most of the time', 5 = 'Almost always'). The score will be counted in each area, a higher score in a particular aspect indicating greater difficulty in emotion regulation in that area.[20] DERS has been adapted to many cultures, translated into various languages, and has demonstrated good psychometric properties.[21-28] DERS was translated into the Thai version, named Difficulty in Emotion Regulation Scale – Thai version (DERS-Thai), by one of the researchers. Subsequently, DERS-Thai was translated back into English by the Translation and Interpretation Center (TICLA) of the Liberal Arts faculty at Mahidol University. Subsequently, all three versions were sent to five experts for review, comparing the original, Thai, and backtranslated versions using the content validity index (CVI) to evaluate their semantic and content validity. CVI required an expert of at least three to score each item range 1 to 4 (1 = 'not relevant', 2 = 'somewhat relevant', 3 = 'quite relevant', 4 = 'highly relevant'), then, I-CVI (content validity index for item) was

derived. Consequently, S-CVI/Ave (Sum I-CVI / number of items) and S-CVI/UA (I-CVI = 1 / number of items) were calculated. Moreover, in the pre-testing phase, all participants were asked to provide recommendations and rate its comprehensibility, divided into two categories: easy to comprehend and measuring a broad range of emotions.

The Emotion Regulation Scale (ERQ) is an assessment of emotion regulation comprising 10 items, developed by Gross and John (2003). This scale evaluates emotion regulation strategies based on the modal model of emotion regulation, which is categorized into two strategies: antecedent-focused and response-focused strategies. It includes reappraisal (6 items) and suppression strategies (4 items), with each item rated from 1 to 7 (strongly disagree to strongly agree). A higher score on each subscale indicates a higher frequency of using that strategy. The ERQ has been translated into Thai by Kumrod and Sunthornchaiya (2015).[14,16]

The Depression Anxiety Stress Scale – 21 is a self-report mental health questionnaire that assesses the symptoms of depression, anxiety and stress, developed by Lovibond and Lovibond (1995).[29] This scale consists of 21 items, each item scored on a 4-Likert scale (0 to 3) according to the severity of symptoms. Scores are then summed up in each aspect, with a higher score indicating a greater severity in those aspects. The DASS-21 was translated into Thai by Oei et al. (2013) and has demonstrated good to excellent internal consistency.[30]

Statistical analysis

Descriptive statistics were used to represent the demographic data and characteristics of the sample. The construct validity of DERS-Thai was evaluated using confirmatory factor analysis (CFA), correlation analysis with ERQ, average variance extracted (AVE), composite reliability (CR), and the known group technique (comparing mean scores between the normal to mild severity and severe to extremely severe groups). Criterion validity was examined through the correlation between DERS-Thai scores and DASS-21 scores. Reliability was assessed by analyzing Cronbach's alpha and McDonald's omega coefficients.

RESULTS

Semantic equivalence was ensured through a back-translation protocol, resulting in most items capturing the original concept of the scale with slight adjustments. Subsequently, the DERS-Thai was reviewed by five experts using the CVI, and the CVI evaluation was performed twice. After the initial evaluation, the expert panel

suggested revisions for some items to be more familiar to the Thai population, specifically items 2, 3, 6, 8, and 31. The final results showed that the Item-CVI (I-CVI) for each item ranged from 0.8 to 1.0, and the Content Validity Index for Scale/Average (S-CVI/Ave), the average of I-CVI for the scale, was 0.85. This indicated that the scale demonstrated an acceptable level of semantic and content validity. It should be noted that the Content Validity Index for Scale/Universal Agreement (S-CVI/UA) requires all experts to agree on an item, and if one expert gives a score of 1 to 2 on that item, it could impact the total S-CVI/UA. As mentioned earlier, the use of three indicators was considered a conservative approach, and thus the S-CVI/Ave and I-CVI were given priority in this study as a liberal approach.[31-33]

Pre-testing phase

In the pre-testing phase, 30 participants were included to preliminarily evaluate the DERS-Thai internal consistency. The sample consisted of 27 females (90.0%) and 3 males (10.0%), with an average age of 29.7 (SD = 7.72). Most of the participants had a bachelor's degree (66.67%), and the majority were from central Thailand (83.34%). Participants reported that the DERS-Thai was easy to understand and measured a broad range of emotions (mean = 3.56 with median = 4 for easy comprehension and mean = 3.47 with median = 4 for measuring a wide range of emotions). The internal consistency was excellent (a = 0.93). However, item 34 was found to have a negative correlation from the corrected item-total correlation (CITC) on its subscale. Subsequently, the research team discussed and revised this item before proceeding to the testing phase.

Testing phase

In the testing phase, 483 participants were initially included, but after applying the exclusion criteria, the final sample size was reduced to 446. Most of the sample consisted of females (81.8%), individuals with a bachelor's degree (55.6%), and those who were single (85.2%). Similarly to the pre-testing phase, most of the participants resided in central Thailand (71.31%). Overall, the DASS-21 scores in the sample indicated a range of distress. Specifically, participants reported depression symptoms slightly higher than the cut-off point. Furthermore, stress symptoms were reported at a mild level and anxiety symptoms were reported at a moderate level (Table 2).

Construct validity

The DERS-Thai measurement model was initially investigated, resulting in an original model (6-correlated

TABLE 1. Demographic characteristics of the Sample in each phase.

Variables	Pre-testing phase (n=30) Number (%)	Testing phase (n=446) Number (%)
Sex		
Male	3 (10.0)	81 (18.2)
Female	27 (90.0)	365 (81.8)
Age	(M=29.70, SD=7.72)	(M=29.19, SD=8.50)
Education		
Primary school	-	1 (0.2)
Secondary school	-	3 (0.7)
High school or Vocational cert.	2 (6.67)	46 (10.3)
High Vocation cert.	1 (3.33)	8 (1.8)
Bachelor's degree	20 (66.67)	248 (55.6)
Master's degree	7 (23.33)	116 (26.0)
Doctor of Philosophy	-	23 (5.2)
Unknown	-	1 (0.2)
Province		
Bangkok	14 (46.67)	210 (47.09)
Central (exclude Bangkok)	11 (36.67)	108 (24.22)
North	3 (10.00)	38 (8.52)
Northeast	2 (6.67)	36 (8.07)
East	-	17 (3.81)
West	-	6 (1.35)
South	-	30 (6.73)
Unknown	-	1 (0.2)
Marital status		
Single	25 (83.33)	380 (85.2)
Married	3 (10.00)	60 (13.4)
Divorced	2 (6.67)	6 (1.3)

factors) that did not establish a good fit. Modification indices suggested some factor modifications. Subsequently, the model was modified (modified model) to improve fit, including allowing the measurement error to correlate, relocating item 30 to another subscale (Nonacceptance), and eliminating item 17 due to low factor loading, as depicted in Fig 1. The results showed that the modified model showed a better fit, as presented in Table 3, compared to the original model. The subsequent analysis was based on the modified model. The factor loading of each item ranged mostly between 0.53 and 0.86, except for the Awareness subscale, which had the lowest factor loading of 0.30 on item 10.

The correlation between subscales, in general, was moderate to strong (r = 0.43 to 0.78). However, the Awareness subscale demonstrated a very weak to weak correlation with other subscales (r = 0.10 to 0.22) except for the Clarity subscale which established a moderate level (r = 0.52)

Additionally, convergent validity was assessed through AVE and CR values. The results indicated that the DERS-Thai subscales have an AVE value range of 0.33 to 0.42 and a CR value range of 0.69 to 0.76. Nevertheless, the DERS-Thai showed a negative correlation with ERQ-reappraisal (r = -0.14 to -0.43) and a positive correlation with ERQ-suppression (r = 0.10 to 0.21). Additionally, the

TABLE 2. Descriptive data of psychological assessment of the sample in testing phase.

	Mean (standard deviation)	N (%)
DERS total score	88.53 (22.63)	
Nonacceptance	17.01 (6.32)	
Goals	14.52 (4.73)	
Impulse	13.93 (5.18)	
Awareness	13.22 (3.59)	
Strategies	18.82 (6.79)	
Clarity	11.03 (4.26)	
ERQ – Reappraisal	33.06 (6.11)	
ERQ – Suppression	17.09 (4.61)	
DASS-21 total score	42.30 (28.33)	
DASS-21 Depression	13.05 (10.93)	
Normal		205 (45.96)
Mild severity		55 (12.33)
Moderate severity		84 (18.83)
Severe severity		35 (7.84)
Extremely severe severity		67 (15.02)
DASS-21 Anxiety	12.55 (9.36)	
Normal		150 (33.63)
Mild severity		40 (8.96)
Moderate severity		109 (24.43)
Severe severity		47 (10.53)
Extremely severe severity		100 (22.42)
DASS-21 Stress	16.70 (10.67)	
Normal		224 (50.22)
Mild severity		50 (11.21)
Moderate severity		69 (15.47)
Severe severity		61 (13.67)
Extremely severe severity		42 (9.41)

known-group technique was performed by comparing DERS-Thai scores between two groups: the normal to mild severity group and the severe to extremely severe group. The outcome indicated that the DERS-Thai score in the severe to extremely severe group was significantly higher than in the other group ($p < 0.001$). These results suggest that DERS-Thai has established an appropriate level of convergent validity (Table 4).

Criterion validity

Criterion validity of DERS-Thai was examined. The correlation between the DERS-Thai score and the DASS-21 score and its subscale indicated a moderate to strong correlation ($r = 0.57$ to 0.70). On the contrary, the Awareness subscale established the lowest level of correlation ($r = 0.27$ to 0.35) (Table 4).

Internal consistency

The DERS-Thai established excellent internal consistency in the overall scale ($\alpha = 0.94$, $\omega = 0.96$). Furthermore, the subscales demonstrated acceptable to excellent levels of internal consistency considering both Cronbach's alpha and McDonald's omega values (Table 5).
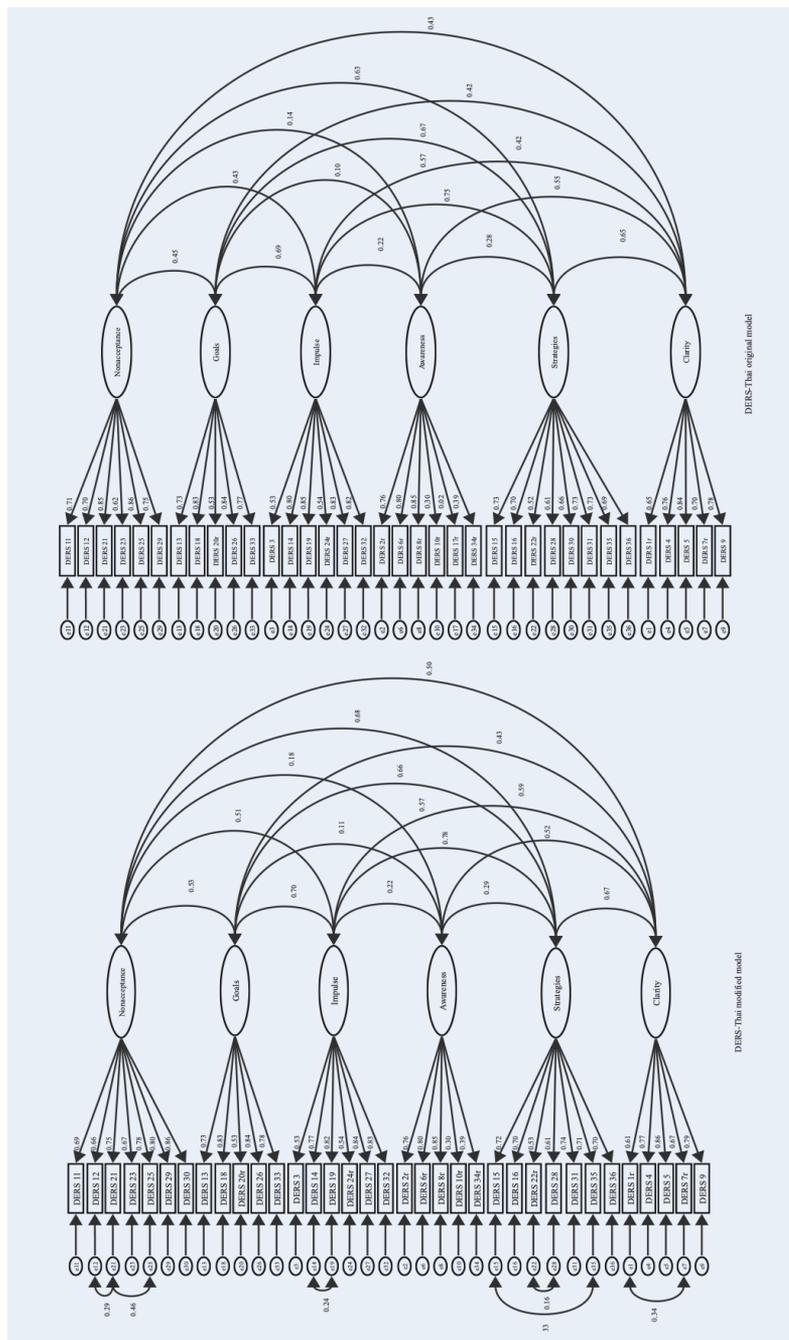
Fig 1. Factor structure of DERS-Thai between the original model and modified model

TABLE 3. Fit indices of the DERS-Thai both the original model and the modified model.

Fit indices	Acceptable fit criteria	Original model	Modified model
χ^2	-	2015.161	1469.260
df	-	579	539
χ^2/df	< 2.0	3.48	2.73
RMSEA (90% CI)	< 0.08	0.075 (0.071-0.078)	0.062 (0.058-0.066)
SRMR	< 0.08	0.080	0.064
CFI	≥ 0.90	0.84	0.90
TLI	≥ 0.90	0.83	0.88

TABLE 4. The correlation analysis between DERS-Thai, ERQ, and DASS-21.

	ERQ reappraisal	ERQ suppression	DASS-21 Total score	DASS-21 Depression	DASS-21 Anxiety	DASS-21 Stress
DERS-Thai	-0.43***	0.13**	0.70***	0.68***	0.57***	0.68***
Nonacceptance subscale	-0.14***	0.21***	0.51***	0.49***	0.42***	0.49***
Goals subscale	-0.27***	0.08	0.41***	0.41***	0.32***	0.39***
Impulse subscale	-0.38***	-0.07	0.55***	0.49***	0.43***	0.57***
Awareness subscale	-0.31***	0.03	0.33***	0.35***	0.28***	0.27***
Strategies subscale	-0.43***	0.16***	0.67***	0.63***	0.54***	0.66***
Clarity subscale	-0.34***	0.10*	0.57***	0.59***	0.48***	0.50***

*p-value < 0.05, ** p-value < 0.01, *** p-value < 0.001

TABLE 5. The internal consistency of DERS-Thai and its subscale.

Scale	Cronbach's alpha	McDonald's omega
DERS-Thai total	0.94	0.96
Nonacceptance	0.90	0.91
Goals	0.86	0.86
Impulse	0.87	0.87
Awareness	0.74	0.77
Strategies	0.86	0.86
Clarity	0.86	0.86

DISCUSSION

This study aimed to evaluate the psychometric properties of DERS-Thai in the Thai population, including from a cultural perspective. As a result, DERS-Thai demonstrated an acceptable level of semantics and content equivalent to the original version. However, there were some cultural difficulties, especially with the term 'upset' due to the fact that in Thai there was no direct meaning word that represents broad negative emotions. Subsequently, from the suggestion of the expert panel, the term upset was described in an instruction section to clarify this meaning to examinees. Moreover, after the pre-testing, the result indicated that item 34 had a negative correlation with other items in its subscale. Consequently, item 34 was revised to put more emphasis on the positive meaning of the term 'take time'. Statistical analysis in the pre-testing phase preliminarily indicated excellent internal consistency for the DERS-Thai.

The characteristics of the sample in this study consisted predominantly of women between 20 to 30 years old, with a significant living in central Thailand. This distribution might be attributed to the advertising strategy used on

social media platforms, this method was chosen for its convenient distribution across country, as the majority of users fall within the 18 to 45 age range. This skewness might be attributed to higher social media engagement among these demographics.[34,35] Data collection revealed that participants experienced various degrees of distress; however, it should be noted that DASS-21 is designed as a screening tool to aid in clinical practice.[29] On detailed examination, the cumulative percentage in the normal to mild severity group was higher than in the severe to extremely severe group. Moreover, considering the questionnaire's inquiries about participants' physical and mental conditions, in line with the exclusion criteria, it can be presumed that the sample in this study represented the characteristics of a normal population.

The factor structure of DERS-Thai was evaluated through CFA, indicating that the original model did not provide a good fit.[21,22,36-40] Subsequent modifications were made, including the reallocation of item 30 into the Nonacceptance subscale (originally under the Strategies subscale) and allowing measurement errors in the same subscale to correlate. Additionally, item 17 was excluded from DERS-Thai due to cultural considerations. In the Thai context, emotions are often not considered valid but rather irrational and undesirable, in accordance with the findings of previous studies.[21,22,41-43] After modification, overall, the DERS-Thai modified model demonstrated a better fit, even though the TLI was slightly below an acceptable level but still close to 0.90.[21,36,42]

The convergent validity of DERS-Thai was evaluated using AVE and CR values, along with correlations with ERQ and mean comparisons between the groups. In the modified model, the AVE values were mostly above the minimum requirement of 0.5, except for the Awareness and Strategies subscales. However, the CR values for all subscales were above 0.6, indicating maintained convergent validity.[44,45] Similar to the correlation between DERS-Thai and ERQ, the correlation between DERS-Thai exhibited a small to moderate correlation; however, the Awareness subscale showed a correlation with ERQ of small magnitude.[23,24,36,46] The mean comparison of DERS-Thai scores in two severity groups of DASS-21 revealed significantly lower scores in the normal to mild severity group in the three domains (p-value < 0.001). Furthermore, the criterion validity of DERS-Thai was assessed through its correlation with DASS-21, revealing a significantly positive correlation, even with the Awareness subscale, which exhibited the lowest correlation.

In conclusion, DERS-Thai has demonstrated an acceptable level of criterion validity.

In summary, DERS-Thai established an appropriate level of validity which can be utilized to predict psychopathology influenced by dysfunction of emotion regulation.[20,24,37,47-51]

The internal consistency of DERS-Thai was examined using both Cronbach's alpha and McDonald's omega. This study used two methods to assess internal consistency due to the nature of Cronbach's alpha, which requires certain assumptions to be met, including tau equivalence, unidimensionality, and uncorrelated error variance. As a result, McDonald's omega was considered a better method overall.[52-56] The findings indicate that the internal consistency of DERS-Thai was excellent, as observed by both methods.

This study has some notable limitations. First, the sample was predominantly female, with a limited age range, mainly located in central Thailand. This may restrict the generalizability of the findings to other populations. Additionally, the sample's educational level, predominantly consisting of bachelor's degree holders, might influence the findings and limit their applicability to populations with different educational backgrounds. Other potential confounding factors, such as socioeconomic status and regional differences, were not controlled for. To address these potential biases, future studies should consider additional recruitment strategies, such as offline methods and targeted outreach to underrepresented groups, including the male population, elderly and adolescent age groups, and individuals with lower educational levels. Second, the stability of the scale, particularly in terms of test-retest reliability, was not assessed.[24,36,38,40,41,57] Additionally, an alternative factor structure was not identified in this study. Therefore, future research with a more diverse population and an examination of the factor structure will enhance our understanding of emotion regulation. Although not conducted in this study, test-retest analysis can be carried out to establish the stability of the scale. However, the DERS-Thai shows promise as a valuable tool for clinicians in assessing emotion regulation difficulties within the Thai population. Clinicians can use the DERS-Thai to identify individuals at risk for various psychiatric conditions linked to poor emotion regulation, allowing for targeted interventions and support.

CONCLUSION

The DERS-Thai demonstrates good psychometric properties, making it a useful instrument for clinical practice and research on emotion regulation in the Thai context. Further studies with diverse populations and comprehensive analysis will strengthen its utility and reliability, ultimately contributing to better mental health outcomes in Thailand.

REFERENCES

1. World Health Organization. ICD-10 : International Statistical Classification of Diseases and Related health problems : Tenth Revision. 2nd ed. Geneva: World Health Organization; 2004.
2. American Psychiatric Association. Diagnostic and Statistical Manual of mental health disorder. 5th ed. Washington, DC2013.
3. World Health Organization. Depressive disorder (Depression) 2021 [Available from: https://www.who.int/news-room/fact-sheets/detail/depression.
4. Aldao A, Nolen-Hoeksema S, Schweizer S. Emotion-regulation strategies across psychopathology: A meta-analytic review. Clin Psychol Rev. 2010;30(2):217-37.
5. Joormann J, Gotlib IH. Emotion regulation in depression: relation to cognitive inhibition. Cogn Emot. 2010;24(2):281-98.
6. Visted E, Vollestad J, Nielsen MB, Schanche E. Emotion Regulation in Current and Remitted Depression: A Systematic Review and Meta-Analysis. Front Psychol. 2018;9:756.
7. Linehan MM. DBT skills training manual. 2nd ed: Guilford Press; 2015.
8. Gross JJ, Thompson R. Handbook of emotion regulation. Emotion regulation: Conceptual foundations. 2007.p.3-26.
9. Berking M, Wupperman P. Emotion regulation and mental health: recent findings, current challenges, and future directions. Curr Opin Psychiatry. 2012;25(2):128-34.
10. Sheppes G, Suri G, Gross JJ. Emotion Regulation and Psychopathology. Ann Rev Clin Psychol. 2015;11:379-405.
11. Kraiss JT, Klooster PM, Moskowitz JT, Bohlmeijer ET. The relationship between emotion regulation and well-being in patients with mental disorders: A meta-analysis. Compr Psychiatry. 2020;102:152189.
12. Ratta-apha W, Kittipavara N, Sripirom V, Hung C-C, Lee TS-H, Pariwatcharakul P, et al. Anxiety, Depression and Cognitive Emotion Regulation Strategies in Psychiatric Patients during the COVID-19 Pandemic. Siriraj Med J. 2022;74(12):857-64.
13. Hosiri T, Sittanomai N, Bumrungtrakul T, Boon-yasidhi V. Emotion Regulation and Behavioral Problems in Children with Autism Spectrum Disorder: A University Hospital Based Cross-Sectional Study. Siriraj Med J. 2023;75(3):218-23.
14. Gross JJ, John OP. Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. J Pers Soc Psychol. 2003;85(2):348-62.
15. Itsarapong P, Suktrakul S, Sangsuksai D, Theinviharn P. Effect of cognitive behavioral therapy program on emotional regulation in adolescent with gaming disorder. Journal of Mental Health of Thailand. 2022;30(1):13-23.
16. Khumrod N, Soonthornchaiya R. The effect of the emotion regulation program on depressive symptoms among patients with major depressive disorder. The Journal of Psychiatric Nursing and Mental Health. 2017;31(2):136-51.
17. Penphu W, Srisawat T, Pradujprom P, Wongupparaj P. The Development of the Emotion Regulation Skills Questionnaire for Undergraduate Students. EAU Heritage Journal Social Science and Humanity. 2020;1:182-93.
18. Rungrueng C. Development of Emotion Regulation Scale for undergraduate students. Journal of Education Measurement, Mahasarakham University. 2020;2:50-66.
19. Soper D. A-priori Sample Size Calculator for Structural Equation Models [Software] 2023 [Available from: https://www.danielsoper.com/statcalc.
20. Gratz KL, Roemer L. Multidimensional Assessment of Emotion Regulation and Dysregulation- Development, Factor Structure, and Initial Validation of the Difficulties in Emotion Regulation Scale. Journal of Psychopathology and Behavioral Assessment. 2004;26(1):41-54.
21. Cho Y. Assessing emotion dysregulation: Psychometric properties of the Korean version of the Difficulties in Emotion Regulation Scale. Korean Journal of Clinical Psychology. 2007;26:1015-38.
22. Gómez-Simón I, Penelo E, Osa Ndl. Factor structure and measurement invariance of the difficulties Emotion Regulation Scale (DERS) in Spanish adolescents. Psicothema. 2014;26(3):401-8.
23. Yiğit İ, Guzey Yiğit M. Psychometric Properties of Turkish Version of Difficulties in Emotion Regulation Scale-Brief Form (DERS-16). Current Psychology. 2019;38(6):1503-11.
24. Moreira H, Gouveia MJ, Canavarro MC. A bifactor analysis of the Difficulties in Emotion Regulation Scale - Short Form (DERS-SF) in a sample of adolescents and adults. Current Psychology. 2020;41(2):757-82.
25. Nordgren L, Monell E, Birgegård A, Bjureberg J, Hesser H. Factor Structure of the Difficulties in Emotion Regulation Scale in Treatment Seeking Adults with Eating Disorders. Journal of Psychopathology and Behavioral Assessment. 2020;42(1):111-26.
26. Rossi AA, Panzeri A, Mannarini S. The Italian Version of the Difficulties in Emotion Regulation Scale – Short Form (IT-DERS-SF): A Two-step Validation Study. Journal of Psychopathology and Behavioral Assessment. 2022;45(2):572-90.
27. Yeh Y-J, Chen J-H, Tsai W, Kimel S. Examining the Factor Structure and Measurement Invariance of the Difficulties in Emotion Regulation Scale Across Taiwanese and American

University Students. Journal of Psychoeducational Assessment. 2022;40(8):985-99.

28. Fekih-Romdhane F, Kanj G, Obeid S, Hallit S. Psychometric properties of an Arabic translation of the brief version of the difficulty in emotion regulation scale (DERS-16). BMC Psychol. 2023;11(1):72.

29. Lovibond SH, Lovibond PF, Psychology Foundation of A. Manual for the depression anxiety stress scales. 2nd ed. Sydney, N.S.W.: Psychology Foundation of Australia Sydney, N.S.W.; 1995.

30. Oei TP, Sawang S, Goh YW, Mukhtar F. Using the Depression Anxiety Stress Scale 21 (DASS-21) across cultures. Int J Psychol. 2013;48(6):1018-29.

31. Lynn MR. Determination and Quantification of Content Validity. Nurs Res. 1985;35(6):382-5.

32. Polit DF, Beck CT. The content validity index: are you sure you know what's being reported? Critique and recommendations. Res Nurs Health. 2006;29(5):489-97.

33. Polit DF, Beck CT, Owen SV. Is the CVI an acceptable indicator of content validity? Appraisal and recommendations. Res Nurs Health. 2007;30(4):459-67.

34. NapoleonCat. Social media users in Thailand - 2022 2022. Available from: https://napoleoncat.com/stats/social-media-users-in-thailand/2022/#section-facebook.

35. OOSGA. Social Media in Thailand - 2023 Stats & Platform Trends 2022. Available from: https://oosga.com/social-media/tha/.

36. Bhatnagar P, Pandey R, Shukla M. Validating the Factor Structure of the Hindi Version of the Difficulties in Emotion Regulation Scale. Journal of Psychopathology and Behavioral Assessment. 2020;42(2):377-96.

37. Giromini L, Velotti P, de Campora G, Bonalume L, Cesare Zavattini G. Cultural adaptation of the difficulties in emotion regulation scale: reliability and validity of an Italian version. J Clin Psychol. 2012;68(9):989-1007.

38. Hallion LS, Steinman SA, Tolin DF, Diefenbach GJ. Psychometric Properties of the Difficulties in Emotion Regulation Scale (DERS) and Its Short Forms in Adults With Emotional Disorders. Front Psychol. 2018;9:539.

39. Kaufman EA, Xia M, Fosco G, Yaptangco M, Skidmore CR, Crowell SE. The Difficulties in Emotion Regulation Scale Short Form (DERS-SF): Validation and Replication in Adolescent and Adult Samples. Journal of Psychopathology and Behavioral Assessment. 2015;38(3):443-55.

40. McVey AJ, Schiltz HK, Coffman M, Antezana L, Magnus B. A Preliminary Psychometric Analysis of the Difficulties with Emotion Regulation Scale (DERS) Among Autistic Adolescents and Adults: Factor Structure, Reliability, and Validity. J Autism Dev Disord. 2022;52(3):1169-88.

41. Cho Y, Hong S. The New Factor Structure of the Korean Version of the Difficulties in Emotion Regulation Scale (K-DERS) Incorporating Method Factor. Measurement and Evaluation in Counseling and Development. 2017;46(3):192-201.

42. Mitsopoulou E, Kafetsios K, Karademas E, Papastefanakis E, Simos PG. The Greek Version of the Difficulties in Emotion Regulation Scale: Testing the Factor Structure, Reliability and Validity in an Adult Community Sample. Journal of Psychopathology and Behavioral Assessment. 2012;35(1):123-31.

43. Yamada K, Sugie M. Development and validation of Japanese version of Difficulty in Emotion Regulation Scale (J-DERS). Japanese Journal of Research on Emotions. 2013;20:86-95.

44. Fornell C, Larcker DF. Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. Journal of Marketing Research. 1981;18(1):39-50.

45. Sumalrot T, Phannajit N, Phattharayuttawat S. Psychometric Properties of Scales for Assessing Experiential Avoidance. Siriraj Med J. 2022;74(11):760-8.

46. Chahar Mahali S, Beshai S, Feeney JR, Mishra S. Associations of negative cognitions, emotional regulation, and depression symptoms across four continents: International support for the cognitive model of depression. BMC Psychiatry. 2020;20(1):18.

47. Harrison A, Sullivan S, Tchanturia K, Treasure J. Emotional functioning in eating disorders: attentional bias, emotion recognition and emotion regulation. Psychol Med. 2010;40(11):1887-97.

48. Lawlor C, Vitoratou S, Hepworth C, Jolley S. Self-reported emotion regulation difficulties in psychosis: Psychometric properties of the Difficulties in Emotion Regulation Scale (DERS-16). J Clin Psychol. 2021;77(10):2323-40.

49. Sloan E, Hall K, Moulding R, Bryce S, Mildred H, Staiger PK. Emotion regulation as a transdiagnostic treatment construct across anxiety, depression, substance, eating and borderline personality disorders: A systematic review. Clin Psychol Rev. 2017;57:141-63.

50. Wu R, Huang J, Ying J, Gao Q, Guo J, You J. Behavioral inhibition/approach systems and adolescent nonsuicidal self-injury: The chain mediating effects of difficulty in emotion regulation and depression. Personality and Individual Differences. 2021;175:110718.

51. Zhao Y, Wu K, Wang Y, Zhao G, Zhang E. Construct validity of brief difficulties in emotion regulation scale and its revised version: evidence for a general factor. Current Psychology. 2022;41(2):1085-96.

52. Cronbach LJ. Coefficient alpha and the internal structure of tests. Psychometrika. 1951;16(3):297-334.

53. Graham JM. Congeneric and (Essentially) Tau-Equivalent Estimates of Score Reliability: What They Are and How to Use Them. Educational and Psychological Measurement. 2006;66(6):930-44.

54. Raykov T. Bias of Coefficient afor Fixed Congeneric Measures with Correlated Errors. Applied Psychological Measurement. 2001;25(1):69-76.

55. Trizano-Hermosilla I, Alvarado JM. Best Alternatives to Cronbach's Alpha Reliability in Realistic Conditions: Congeneric and Asymmetrical Measurements. Front Psychol. 2016;7:769.

56. McDonald RP. Test theory: A unified treatment. Mahwah, NJ, US: Lawrence Erlbaum Associates Publishers; 1999. xi, 485-xi, p.

57. Bardeen JR, Fergus TA, Orcutt HK. An Examination of the Latent Structure of the Difficulties in Emotion Regulation Scale. Journal of Psychopathology and Behavioral Assessment. 2012;34(3):382-92.