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Exploring the usefulness of the Brief COPE in clinical and positive psychology: A discriminant content validity study

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Abstract: The Brief Coping Orientation to Problem Experienced (COPE) scale is widely used for measuring coping strategies. However, concerns persist regarding the dimensions captured by the scale and the accuracy of item representation. This study examined the relevance of adapted Brief COPE items using Discriminant Content Validity (DCV). A panel of experts (n = 15) assessed the extent to which the items corresponded to their intended dimensions. Intraclass correlation (ICC) estimates ranged from .640 to .828, indicating agreement among experts. A one-sample t-test evaluated DCV, revealing that 21 out of 28 items distinctly and exclusively measured intended dimensions, confirming their discriminant content validity. Seven items were excluded: three did not measure coping strategies (non-dimension), and four measured them in different dimensions (wrong-dimension). The discriminant content-validated Brief COPE scale improves coping assessment, benefiting psychological therapies and providing researchers with refined measures for each coping strategy dimension, addressing dimensional concerns.

Keywords: discriminant content validity; coping strategies; dysfunctional coping; emotion-focused coping; problem-focused coping

Abstrak: Skala *Brief Coping Orientation to Problem Experienced* (COPE) banyak digunakan untuk mengukur strategi koping. Namun, kekhawatiran tetap ada mengenai dimensi yang ditangkap oleh skala dan keakuratan representasi butir. Penelitian ini menguji relevansi butir COPE Singkat yang diadaptasi menggunakan *Discriminant Content Validity* (DCV). Panel ahli (n = 15) menilai sejauh mana tiap butir telah sesuai dengan dimensi yang dimaksudkan. Estimasi *Intraclass correlation* (ICC) berkisar antara 0,640 hingga 0,828, menunjukkan kesepakatan di antara para ahli. Uji-t satu-sampel mengevaluasi DCV, mengungkapkan bahwa 21 dari 28 butir dengan jelas dan secara eksklusif mengukur dimensi yang diinginkan, mengonfirmasi validitas konten diskriminan mereka. Tujuh butir dikeluarkan: tiga tidak mengukur strategi koping (non-dimensi), dan empat mengukurnya dalam dimensi yang berbeda (dimensi yang salah). Skala Brief COPE yang divalidasi secara konten diskriminan dapat meningkatkan pengukuran koping, sehingga menguntungkan terapi psikologis dan memberi para peneliti langkah-langkah yang di-sempurnakan untuk setiap dimensi strategi koping, mengatasi masalah dimensionitas yang ada selama ini.

Kata Kunci: *discriminant content validity*; strategi koping; disfungsional koping; koping yang berfokus pada emosi; koping yang berfokus pada penyelesaian masalah

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Introduction

Life poses numerous stressors. According to Lazarus and Folkman (1987) transactional theory, stress is created by a bad relationship with one's surroundings and unpleasant emotions such as fear and rage. Stressed people utilize coping strategies. Constantly evaluating stimuli causes certain emotions, and harmful stimuli produce stress. This can result in both positive and negative feelings, as well as effective or ineffective coping (Biggs et al., 2017). Therefore, positive psychology interventions to promote adaptive coping techniques and positive outcomes are crucial (Fredrickson, 2001; Seligman & Csikszentmihalyi, 2000).

According to the widely used transactional theory in clinical and positive psychology, stress is composed of three primary components: stressors, cognitive appraisal, and coping strategies (Lazarus & Folkman, 1987). Stressors are situations that induce anxiety; cognitive appraisal entails evaluation of the effect of stressors on an individual's well-being and assessment of their coping resources (Borualogo & Casas, 2021). It consists of both primary and secondary evaluation, together with reevaluation of past events. Lazarus and Folkman (1984) define coping strategies as actions performed to manage adversity and reduce psychological disorders. The choice of strategy is contingent upon the secondary evaluation phase Lazarus and Folkman (1987). Lazarus and Folkman (1984; 1987) highlight two types of coping strategy: problem-focused coping, which directly targets the stressor; and emotion-focused coping, which seeks to reduce emotional stress. This transactional paradigm emphasizes the importance of individual appraisal and coping strategies for stress reduction and the promotion of well-being.

In light of the prevalence and impact of stress in people's lives, it is essential to recognize the significance of coping mechanisms in promoting emotional health and overall functioning. Not only do effective coping strategies reduce the risk of psychological disorders, but they also contribute to positive outcomes and enhanced resilience in the face of adversity (Bukhori, et al., 2022). Additionally, adverse childhood experiences can have lasting impacts into adulthood, affecting individuals' mental health and well-being (Leman & Arjadi, 2023)

COPE is a commonly used assessment instrument for coping strategies. Numerous clinical and positive psychology studies have employed the Coping Orientation to Problem Experienced (COPE) measurement instrument. The adaptability of COPE to different age groups and subject domains is one of its major advantages. It has been used effectively to measure coping strategies in chronically ill patients, their careers, and employees (Kato, 2015). It has been used in the workplace to evaluate how employees manage with stressors such as unemployment. Researchers and clinicians have found COPE to be a versatile and valuable instrument for understanding how individuals cope with life's challenges.

According to Schmitt et al., (2013) an optimal questionnaire is concise, simple to use in daily practice, and reduces the burden and expense of data collection and management. However, Carver (1997) discovered that respondents were impatient when using the comprehensive version of the COPE measurement instrument. Therefore, it is essential to develop shorter versions of measurement instruments that capture similar constructs (Prasetyawati et al. , 2021). As a result, Carver (1997) streamlined the COPE measurement instrument, resulting in the development of the Brief COPE, which offers numerous benefits. For instance, by eliminating or modifying scales or items researchers can tailor the instrument to the characteristics of their sample (Solberg et al.,

2022). The Brief COPE has been utilised extensively in clinical and positive psychology research, including studies on chronically ill patients, carers, and employees coping with stressors such as job loss (Kamarulbahri et al. , 2022; Søvold et al., 2021).

The Brief COPE is a multidimensional measuring instrument based on Lazarus' coping concept (Carver et al. , 1989). It classifies coping strategies into three main types: emotion-focused, problem-focused, and dysfunctional. It includes 14 sub-dimensions: 1) active coping; 2) planning; 3) positive reframing; 4) acceptance; 5) humor; 6) religion; 7) using emotional support; 8) using instrumental support; 9) self-distraction; 10) denial; 11) venting; 12) substance use; 13) behavioral disengagement; and 14) self-blame.

The Brief COPE has been utilized extensively in primary validation studies, including those conducted by Bose et al. (2015), García et al. (2018), Monzani et al. (2015) and Peters et al. (2020), in which confirmatory factor analysis (CFA) revealed that the Spanish and French translations of the Brief COPE had the same 14 subscales as the English version (García et al., 2018; Monzani et al., 2015). However, Peters et al. (2020) and Bose et al. (2015) discovered variations in the subscales, respectively identifying 13 and 12 subscales within the four factors.

Several studies have investigated the adaptation of the Brief COPE to the Indonesian context. Angelica et al. (2022) studied coping strategies in a sample of 211 students using the Brief COPE inventory, adopting a model with three primary categories: emotion-focused, problem-focused, and dysfunctional coping strategies. However, this study has limitations, in that it only reports Cronbach's alpha coefficients as indicators of internal structure and does not provide a comprehensive report on psychometric testing related to this structure, thereby limiting the evaluation of the data fit with the model.

In contrast, Huda et al. (2022) provided extensive psychometric information regarding the measurement of coping strategies using the Brief COPE scale. From a two-dimensional model (adaptive-maladaptive) to a five-dimensional one consisting of avoidance, religion and acceptance, social support buffering, problem-solving, and diversion, they tested numerous models, suggesting the five-factor model for the abbreviated scale. This model has a different conceptualization than the previous research from Angelica et al. (2022), and based on the results of exploratory and confirmatory factor analysis (EFA and CFA), Huda et al. (2022) suggest retaining only 21 of the original 28 items. Huda et al. (2021; 2022) and Huda and Chang (2020) collected data from 440 patients with advanced cancer aged 18 or above. Therefore, care should be taken when extrapolating and generalizing the results of this study to a larger population.

The American Educational Research Association (AERA), American Psychological Association (APA), National Council on Measurement In Education (NCME) (2014) stress the significance of validity, which refers to the extent to which evidence and theory support the interpretation of test scores for the intended use of the test. The validation process entails collecting pertinent evidence to establish a firm scientific basis for interpreting the proposed scores (Shepard, 2016). Consequently, validity is concerned with the interpretation of test scores for a particular purpose. AERA, APA, and NCME (2014) proposed three categories of validity in 1966: content validity, process response validity, and relationship validity with other variables. In 1985, they introduced the Unitary Concept of Validity, which emphasizes the integration of multiple categories of validity evidence to comprehensively evaluate the quality of measurement instruments.

Despite its significance in accurately measuring constructs, content validity is frequently overlooked, which can lead to problematic implications for study results. One specific concern is the presence of items with ambiguous meanings, particularly those addressing sensitive topics such as substance use (Yeni & Pelupessy, 2023; Yuniardi et al., 2022). Johnston and Pollard (2001) emphasize the importance of analyzing the relationship between health constructs proposed by a model. Their research revealed that many items contained a combination of constructs, rendering them inappropriate for testing causal pathways. Nevertheless, by identifying "pure" items, they were able to verify the hypothesized relationships (Johnston et al., 2014). Discriminant content validity (DCV) is a comprehensive approach used to evaluate items based on the specific construct being measured, ensuring that an item does not measure other constructs.

Solberg et al. (2022) conducted a systematic review to investigate the factor structure of the Brief COPE by analyzing over 85 peer-reviewed studies. Several dimension reduction techniques, including exploratory factor analysis (EFA), confirmatory factor analysis (CFA), and principal components analysis (PCA), were examined. Non-English publications and those that did not satisfy the selection criteria were excluded from the review. The factor structure of the concise COPE remains a matter of debate, with two to 15 identified factors.

Despite proposing the same number of factors, various studies have proposed different ways to organize the structure of the Brief COPE inventory (Carver et al., 1989; Solberg et al., 2022). A two-factor model, for instance, may propose problem-focused and emotion-focused coping, whereas another model may propose approach-avoidance coping, primary-secondary control coping, or adaptive-maladaptive coping. The grouping of items has a substantial impact on the interpretation of scale scores and the conclusions that can be derived. Before implementing the summary COPE scale in clinical or research settings, it is essential to carefully consider the selected model and its implications.

The close correlation between distinct dimensions is one of the challenges associated with the dimension of the Brief COPE inventory. There have been high correlations (.40 to .69) between dimensions such as active coping, planning, suppression of competing activities, and emotional and instrumental social support, since the original version comprising 60 items (Carver et al., 1989). These correlations continue to exist in the 28-items abbreviated version (García et al., 2018; Huda et al., 2022). In addition, García et al. (2018) report significant intercorrelations between some Brief COPE scales and other constructs, such as denial and substance use with perceived stress and emotional support, and active coping with subjective well-being.

Despite the fact that the internal structure of the Brief COPE may be sound and consistent, it is crucial that it accurately measures coping strategies using DCV techniques. DCV permits the evaluation of the relevance and uniqueness of measurement items for measuring the intended construct, while minimizing overlap with other constructs (Veirman et al., 2021).

Concerns have been raised about the dimensionality and factor structure of the Brief COPE, but no investigation using DCV has yet been conducted (Johnston et al., 2014). DCV provides a systematic and transparent method for evaluating the suitability of measurement items for measuring the intended construct and distinguishing it from other constructs. This study employs DCV to evaluate the factor structure of the Brief COPE in order to identify items that do not contribute to measurement of the construct, and to identify items that may measure other constructs.

The purpose of this study is to employ discriminant content validity to reduce item and dimension overlap in the Brief COPE, thereby ensuring that the measurement instrument accurately assesses coping strategies. Examining the application of DCV in psychometric studies of the Brief COPE will contribute significant knowledge to the field.

Methods

Participants

The panel consisted of fifteen experts from three distinct categories: psychometrics and psychological assessment experts; clinical or positive psychology practitioners; and professional psychologists. All panel members held at least a bachelor's degree in psychology, and their participation was solicited through personal communication. In Step 3 of the procedure section, the process of identifying and selecting the panel members is described in detail.

Instrument

Based on previous research by Kato (2015) which highlights its pervasive use as a measurement tool for coping strategies, this study employs the Brief COPE instrument. This was chosen due to its similarity to COPE despite having fewer items (Kato, 2015).

This study utilized the Brief COPE inventory, which consists of 28 items grouped into three primary dimensions and 14 sub-dimensions. The first dimension is problem-focused coping, which consists of sub-dimensions such as active coping, instrumental support, and planning. The second dimension is emotional-focused coping, which comprises sub-dimensions such as emotional support, positive reframing, acceptance, and religion. The final dimension is dysfunctional coping, which includes sub-dimensions such as self-distraction, denial, substance use, behavioral disengagement, catharsis, humor, and self-blame. Please refer to the appendix for a detailed description of the items.

Previous psychometric research on the Indonesian-adapted Brief COPE has revealed internal consistency coefficients (α) of .701 for dysfunctional coping; .680 for problem-focused coping; and .602 for emotion-focused coping (Angelica et al., 2022). At the sub-dimensional level, internal consistency indices ranged from .500 to .900, providing further evidence of the instrument's reliability and consistency in assessing coping strategies among the target population (Putri, 2012).

Discriminant Content Validity Procedure

To examine the content of the items in relation to the applicable theory, the researchers utilized the discriminant content validity (DCV) technique, adapted from Johnston et al. (2014), to evaluate the Brief COPE measuring device. The DCV procedure consisted of six steps:

Step 1. Preparation of Construct Definitions

In the initial phase of the DCV procedure, the researchers made crucial decisions regarding the constructs to be investigated. In consideration of efficiency, the choice was made to adopt a measurement model consisting of three dimensions: problem-focused coping, emotion-focused coping, and dysfunctional coping. This approach was deemed more efficient than evaluating all 14 sub-dimensions of the Brief COPE within the DCV study.

In order to construct the conceptual definitions that were to be employed in this research, we drew the definitions from the original study of COPE that were conducted by Carver et al. (1989) as well as Brief COPE that was conducted Carver (1997).

Additionally, in order to enhance the contextual relevance within the Indonesian cultural setting, we incorporated conceptual

definitions from the Brief COPE adapted for Indonesia (Angelica et al., 2022; Faisal & Mutiah, 2019; Putri, 2012). The conceptual definitions used for coping strategies and their three dimensions, along with their translations in Bahasa Indonesia, were presented to the panelists, as shown in Table 1.

Step 2. Preparation of Sample of Items

The items used in the DCV evaluation were derived from a literature review and followed the guidelines for translating and adapting tests provided by the International Test Commission (2017) and the criterion checklist proposed by Hernandez et al. (2020).

In essence, the translation process employed a multi-translation approach, which involved comparing multiple translation versions, as well as a reconciliation phase that engaged a panel team to align the translation results and address any discrepancies between the forward and backward translations. We also piloted the items with three participants from the public to test the readability of the items and ensure that they were easily understood.

The literature review encompassed three previous adaptations conducted in the Indonesian language (Angelica et al., 2022; Faisal & Mutiah, 2019; Putri, 2012). Additionally, professional translators were enlisted to translate the items. The Indonesian version was then submitted to the translation team for back-translation into English. Following these processes, a total of 28 adapted Brief COPE items were obtained, which were deemed to be aligned with the predetermined conceptual definitions.

Step 3. Recruitment of Appropriate Panelists

Out of the initial 16 experts contacted, 15 panelists participated in the study. Among these, five held doctoral degrees and ten Master's degrees. The panel consisted of 15 experts from various backgrounds, including psychometrics, clinical or positive psychology, and professional psychology. Among the panelists, there were two experts in psychological measurement; six with experience in developing measurement tools or intervention techniques in the fields of coping, mental health, or stress; and seven who were professional psychologists.

Table 1

Definition of Coping Strategies and Dimension

Construct or Dimension	Definition
Coping strategies	Coping strategies are behaviors, sets of activities, or thinking processes employed in response to stressful or unpleasant situations or to modify one's reaction to them. Unlike defense systems, coping techniques typically entail a conscious and direct approach to the problem.
Problem-focused coping	Coping strategies consist of acts or efforts aimed at overcoming, resolving, or altering the source of stress or issues.
Emotion-focused coping	Coping strategies by making attempts or taking steps to manage negative feelings caused by threatening, hazardous, or difficult circumstances that cannot be changed or overcome.
Dsyfunctional coping strategies	Coping strategies that only feel helpful at first but are ineffective if used continuously or in the long run.

The data analysis was only conducted on participants who had completed the worksheet correctly and met the performance criteria. They completed the questionnaires independently, with the help of a trained team. Standardized worksheets and recorded videos were used for the instructions. Each panelist had 1-2 trained assistants who ensured understanding of the instructions and prevented errors. The assessment process was documented by video and audio recordings.

Step 4. Establishment of the Construct Assessment Scale

A yes/no scale and a confidence scale ranging from 0% to 100% in 10-point increments were chosen. Using Google Sheets, a worksheet was created for the panelists to assess coping strategies. This included construct definitions, Brief COPE items, and a scale or blank column for the panelists' evaluations. This step allowed for a systematic and organized assessment of coping strategies.

Step 5. Conducting of the Content Validity Test

After completing the assessments, the researchers conducted statistical data analysis in two stages: inter-rater reliability testing and DCV testing. The former measured the level of agreement among the panelists for each item, with an intraclass correlation (ICC) value above .900 indicating good consistency. The second stage involved a one-sample t-test to compare the panelists' mean ratings based on predetermined criteria. Positive scores (10 to 100) indicated agreement with the item's alignment, while negative ones (-10 to -100) indicated rejection. A score of 0 served as the criterion. Significant and positive scores indicated confidence in measuring the construct, while non-significant or negative ones suggested uncertainty or disagreement. There are two possible conclusions: the item effectively measures the construct (is significant and positive), demonstrating content validity for the proposed construct, or it clearly does not measure the construct (is significant and negative, or non-significant).

Step 6. Evaluation of the Items' Discriminant Content Validity

In the final step, the researchers evaluated the DCV analysis results for each item, resulting in two categories: DCV and non-DCV. For the Brief COPE, DCV items are classified into three dimensions: problem-focused coping strategies, emotion-focused coping strategies, and dysfunctional coping strategies. DCV items demonstrate strong content validity, indicating their effectiveness in measuring the intended construct based on positive t-value and significant p-values.

Non-DCV items, on the other hand, have three subcategories. Mixed-dimension suggests an item is associated positively and significantly with multiple constructs; non-dimension indicates a lack of significant associations or a negative and significant association with any construct, indicating a failure to measure the intended construct; and wrong-dimension signifies that an item is associated positively and significantly with a different construct than intended.

As a recommendation, it is advisable to retain items with strong DCV, as they effectively measure the intended construct. Non-DCV items can be improved by refining keywords, particularly for items with non-significant or significant t-value in unintended dimensions. However, if panelists consistently provide highly negative and significant t-value for non-DCV items, it may be necessary to exclude them.

Results

IBM SPSS Statistics version 26 was used to observe the extent to which the panelists agreed with each other. The two-way mixed-effects

intraclass correlation (ICC) model was used to study reliability based on mean consistency (N=15 average measures). Everyone in the group was asked to rate the same. Overall, the ICC estimates for each part of the Brief COPE varied from .640 to .828, which is a good result. These results show that the panelists were able to come to the same conclusions. See Table 2 for details.

In this study, we used a one-sample t-test to assess Discriminant Content Validity (Table 3). In Dimension 1 (problem-focused coping strategies), all items showed positive t-value and were significant ($p < .05$). This indicates that these items effectively measure Dimension 1, which is problem-focused coping strategies.

For Dimension 2 (Table 3), most items had positive t-value and were significant ($p < .05$), indicating that they are DCV items. However, item 24 was classified as a non-DCV item in the non-dimension category as it does not measure any of the three coping strategies dimensions.

In Dimension 3 (Table 3), there were 8 DCV items (1, 3, 4, 11, 13, 16, 19, and 26) with positive t-value and significance ($p < .05$). Items 6 and 8 were classified as non-DCV items in the non-dimension category as they do not measure any of the three coping strategies dimensions. Items 9, 18, 21, and 28 were also categorized as non-DCV items in the wrong-dimension category as they were found to measure Dimension 2 (emotion-focused coping strategies) instead of Dimension 3 (dysfunctional coping strategies).

The data presented in Figure 1 shows that for Dimension 1 (items 2, 7, 10, 14, 23, and 25), the majority of panelists (equal to or more than 73%) agreed that these items measure Dimension 1, except for item 10, where the agreement level was only 53%. All panelists unanimously agreed that items 2, 14, and 25 are pure measures of Dimension 1, specifically assessing Dimension 1 without including other dimensions or a combination of dimensions. Similar results were found for items in Dimension 2, namely emotion-focused coping (5, 12, 15, 17, 20, 22, 24, and 27), where equal to or more than 60% of panelists agreed that these items measure Dimension 2. Unlike the previous dimensions, in Dimension 3 (dysfunctional coping) only 6 items (1, 4, 11, 13, 16, and 26) had equal to or more than 50% of panelists agreeing that these items measure Dimension 3.

It is known that out of the 28 items, 21 (75%) were classified as discriminant content validity (DCV), accurately measuring the intended constructs. All six items (100%) in the problem-focused coping dimension were considered DCV. In the emotional-focused coping dimension, seven out of eight items (87%) were classified as DCV, For the dysfunctional coping dimension, 57% of the 14 items were classified as DCV.

Table 2

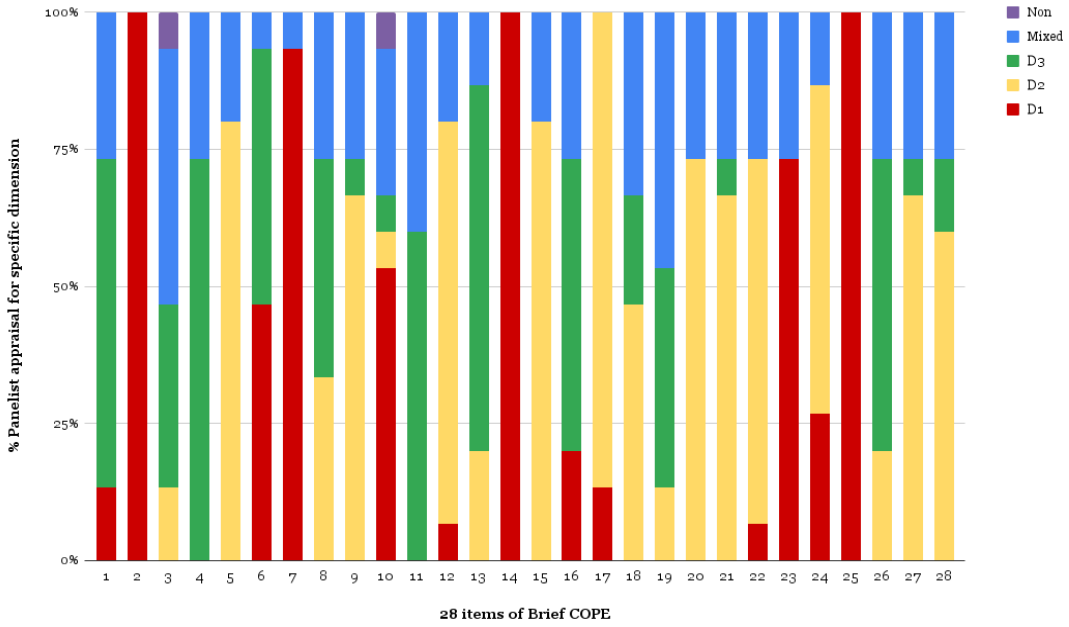
The Inter-rater Reliability of Panellits (N=15)

Dimension	Intraclass Correlation (ICC)	95% Confidence Interval		Category
		Lower Bound	Upper Bound	
PF	.828***	.645	.934	Reliable
EF	.640**	.279	.860	Adequate
D	.757***	.529	.904	Reliable

Note. * p < .05 ** p < .01 *** p < .001

Figure 1

Percentage of Panelists Assessing the Fit of Items and Dimensions in Brief COPE



The absence of mixed-dimension items in the Brief COPE enhances its accuracy in measuring distinct coping strategies. This strengthens the validity of the results of the scale by ensuring independent measurement of each coping dimension, without overlap. However, some non-dimension items need to be reviewed to ensure their alignment with the intended dimensions in the future. In the emotional-focused coping dimension, one item (13% out of the eight) was categorized as non-dimension. Additionally, two items (14% out of 14 items) in the dysfunctional coping dimension lacked association with any specific dimension.

Wrong-dimension items were only found in the dysfunctional coping dimension, with four out of 14 (29%) misaligned. These items were recognized as valuable in the context of emotional-focused coping strategies, highlighting the complexity of such strategies and cultural variations.

While most items exhibited content validity, the presence of non-DCV items should be acknowledged. Careful refinement of these items, especially in evaluating dysfunctional coping, is crucial. Further comparative analysis of previous studies is essential to gain a comprehensive understanding and enhance the scale's measurement properties.

Discussion

The discrepancy in the measurement of some items of the intended construct aligns with previous reports of problematic items. The discussion starts by addressing the non-discriminant content valid (non-DCV) items falling within the non-dimension category. Factor

analyses conducted by Rahman et al. (2021) and Huda et al. (2022) indicate that item 6, pertaining to behavioral engagement, exhibited low factor loadings. Similarly, Yusoff (2011) reported low factor loadings for item 8, representing denial, while Rahman et al. (2021) found low-factor loadings for item 24, associated with acceptance. Overall, these three non-dimension items have been identified as problematic in capturing the dimensions or sub-dimensions of coping strategies.

Table 3

DCV Analysis of the Brief COPE

No	PF	EF	D	Original Dimension	Status
	t-value	t-value	t-value		
1	-4.186***	-2.161*	3.908**	Dimension 3	DCV
2	91.671***	-67.703***	-72.782***	Dimension 1	DCV
3	-108.602***	0.550	2.351*	Dimension 3	DCV
4	-55.800***	-2.578*	51.906***	Dimension 3	DCV
5	-108.602***	16.462***	-4.097**	Dimension 2	DCV
6	-0.056	-41.611***	0.186	Dimension 3	Non-Dimension
7	63.504***	-8.834***	-108.602**	Dimension 1	DCV
8	-108.602***	0.487	1.082	Dimension 3	Non-Dimension
9	-108.602***	8.915***	-1.802	Dimension 3	Wrong-Dimension
10	2.789*	-1.888	-3.755**	Dimension 1	DCV
11	-7.639***	-2.343*	21.903***	Dimension 3	DCV
12	-2.088	5.974***	-41.611***	Dimension 2	DCV
13	-149.000***	-2.135	2.744*	Dimension 3	DCV
14	149.000***	-74.000***	-149.000***	Dimension 1	DCV
15	-108.602***	108.602***	-3.305**	Dimension 2	DCV
16	-0.508	-149.000***	2.491*	Dimension 3	DCV
17	-4.019**	3.897**	-49.000***	Dimension 2	DCV
18	-108.602***	2.390*	0.014	Dimension 3	Wrong-Dimension
19	-108.602***	0.362	3.987**	Dimension 3	DCV
20	-2.333*	30.022***	-40.846***	Dimension 2	DCV
21	-108.602***	8.060***	-1.739	Dimension 3	Wrong-Dimension
22	-6.465***	6.197***	-2.598*	Dimension 2	DCV
23	31.166***	-3.653**	-4.344***	Dimension 1	DCV
24	-1.065	1.379	-7.167***	Dimension 2	Non-Dimension
25	149.000***	-74.000***	-49.000***	Dimension 1	DCV
26	-8.915***	-0.538	2.694*	Dimension 3	DCV
27	-149.000***	8.915***	-2.389*	Dimension 2	DCV
28	-149.000***	3.335**	-0.988	Dimension 3	Wrong-Dimension

Note. PF (Dimension 1 - Problem-Focused Coping Strategies), EF (Dimension 2 – Emotion - Focused Coping Strategies), D (Dimension 3 - Dysfunctional Coping Strategies).
* $p \leq .05$ ** $p \leq .01$ *** $p \leq .001$

Similarly, previous research has reported issues with non-DCV items in the wrong-dimension category. Interestingly, some studies have reported that the wrong-dimension items often exhibit cross-loadings on multiple factors. For instance, item 9, which is associated with the sub-dimension of emotional expression, was found to have cross-loadings on multiple factors in the study conducted by Huda et al. (2022) and exhibited low factor loading according to Matsumoto et al. (2020). In a similar vein, item 18, representing the sub-dimension of humor, showed low factor loading in the study by Rahman et al. (2021). Furthermore, item 21, categorized as the sub-dimension of emotional expression, also demonstrated cross-loadings and low factor loading in the studies conducted by Huda et al. (2022) and Matsumoto et al. (2020). Finally, item 28, pertaining to the sub-dimension of humor, exhibited low factor loading according to Rahman et al. (2021) and was found to have cross-loadings on multiple factors in the study conducted by Huda et al. (2022).

Previous research has mainly examined the internal structure of the Brief COPE scale using factor analysis (Huda et al., 2022; Matsumoto et al., 2020; Rahman et al., 2021; Yusoff, 2011). In contrast, this study took a different approach by categorizing items based on content similarity and measurement dimension definitions, rather than participant responses. The DCV of the scale was assessed through panelist agreement ratings. Previous studies have primarily focused on exploring the internal structure of the Brief COPE scale through factor analysis (Huda et al., 2022; Matsumoto et al., 2020; Rahman et al., 2021; Yusoff, 2011). In contrast, this study employed a distinct approach by categorizing items based on their content similarity and alignment with measurement dimension definitions. To assess the DCV of the scale, panelists' agreement ratings were utilized.

Considering the unique methodology of this study, it is important to interpret these approach differences with caution. The convergence of findings regarding the poor classification of seven items based on participant response patterns (internal structure) and panelists' agreement on item-definition alignment (test content) suggests the presence of at least two sources of validity evidence highlighting problematic items. In other words, the seven items are considered problematic for two reasons. First, they elicited responses from participants that were difficult to understand. Second, the panelists themselves classified these items as non-DCV, indicating that they either belonged to the wrong-dimension or failed to measure coping strategies effectively.

After recognizing that all of the seven non-DCV items have been previously reported as problematic based on internal structure evidence, the effort to improve these becomes even more crucial. Unfortunately, in previous studies, although it was mentioned that some items overlapped or were associated with more than one factor, it was not specified which factors were the issue (cross-loaded factors). Hence, the recommendations for improving the items in this study were exclusively based on the evaluations of panelists using the DCV assessment. The revised versions of the seven items are presented in conjunction with the other 21 items as Table 4.

In general, the item revisions involved identifying inadvertently measured concepts and reducing or replacing the triggering words or phrases, as well as emphasizing the intended concepts to strengthen their presence. This approach is applicable to both items classified under the wrong-dimension category and non-dimension items. However, the distinction lies in our understanding of the concept inadvertently measured. In the case of wrong-dimension items, the concept inadvertently measured is undoubtedly one of the coping strategy dimensions.

Table 4

Item Recommendation for Brief COPE

Dimension	Sub-dimension	English Version	Translation in Bahasa Indonesia
Problem focused coping	Active coping	2. I've been concentrating my efforts on doing something about the situation I'm in.	2. Saya memfokuskan upaya saya untuk melakukan sesuatu terhadap situasi yang sedang dihadapi.
		7. I've been taking action to try to make the situation better.	7. Saya mengambil tindakan untuk mencoba membuat situasi menjadi lebih baik.
	Instrumental support	10. I've been getting help and advice from other people.	10. Saya mendapatkan bantuan dan nasihat dari orang lain.
		23. I've been trying to get advice or help from other people about what to do.	23. Saya mencari nasihat atau bantuan dari orang lain tentang apa yang seharusnya dilakukan.
	Planning	14. I've been trying to come up with a strategy about what to do.	14. Saya berusaha membuat strategi (rencana yang cermat) tentang apa yang harus dilakukan.
		25. I've been thinking hard about what steps to take.	25. Saya berpikir keras tentang langkah-langkah yang harus diambil.
Emtional focused coping	Emotional support	5. I've been getting emotional support from others.	5. Saya mendapatkan dukungan emosional (pembenaran dan penghiburan) dari orang lain.
		15. I've been getting comfort and understanding from someone.	15. Saya mendapatkan penghiburan dan pengertian dari orang lain.
	Positive reframing	12. I've been trying to see it in a different light, to make it seem more positive.	12. Saya mencoba memandang masalah secara berbeda agar terlihat lebih positif.
		17. I've been looking for something good in what is happening.	17. Saya berusaha mencari hal baik dalam apa yang sedang terjadi.
	Religion	22. I've been trying to find comfort in my religion or spiritual beliefs.	22. Saya berusaha menemukan penghiburan dalam agama atau kepercayaan (keyakinan spiritual) saya.
		27. I've been praying or meditating.	27. Saya berdoa atau bermeditasi.
	Acceptance	20. I've been accepting the reality of the fact that it has happened.	20. Saya menerima kenyataan bahwa masalah tersebut telah terjadi.
		24. I've been learning to live with it.	24. Saya telah belajar untuk hidup bersama dengan masalah saya. (O-ND)
			24. Saya berusaha menerima kenyataan dan hidup dengan hal ini. (R)
Dysfunctional coping	Self distraction	1. I've been turning to work or other activities to take my mind off things.	1. Saya berusaha menerima kenyataan dan hidup dengan hal ini.
		19. I've been doing something to think about it less, such as going to movies, watching TV, reading, daydreaming, sleeping, or shopping.	19. Saya melakukan sesuatu agar tidak terlalu memikirkan apa yang sedang terjadi, misalnya dengan menonton, membaca, melamun, tidur, atau berbelanja.
	Denial	3. I've been saying to myself "this isn't real.".	3. Saya mengatakan pada diri sendiri bahwa hal ini tidak mungkin terjadi.
		8. I've been refusing to believe that it has happened.	8. Saya menolak memercayai apa yang sudah terjadi. (O-ND)
			8. Saya enggan menerima fakta bahwa ini benar-benar terjadi. (R)
	Self-blame	13. I've been criticizing myself.	13. Saya mencela diri sendiri.
		26. I've been blaming myself for things that happened.	26. Saya menyalahkan diri sendiri atas apa yang telah terjadi.

Dimension	Sub-dimension	English Version	Translation in Bahasa Indonesia
	Substance use	4. I've been using alcohol or other drugs to make myself feel better.	4. Saya mengonsumi alkohol atau obat-obatan lain untuk membuat diri sendiri merasa lebih baik.
		11. I've been using alcohol or other drugs to help me get through it.	11. Saya mengonsumi alkohol atau obat-obatan lainnya untuk membantu saya melewati masalah.
	Venting	9. I've been saying things to let my unpleasant feelings escape.	9. Saya mengatakan beberapa hal untuk meluapkan perasaan yang tidak menyenangkan.
			9. Saya melampiaskan perasaan frustrasi dan kemarahan saya melalui kata-kata. (R)
		21. I've been expressing my negative feelings.	21. Saya mengungkapkan perasaan negatif saya. (O-WD)
			21. Saya meluapkan perasaan buruk yang saya miliki. (R)
	Humor	18. I've been making jokes about it.	18. Saya membuat lawakan tentang masalah saya. (O-WD)
			18. Saya menjadikan masalah itu sebagai bahan candaan (R).
		28. I've been making fun of the situation.	28. Saya menertawakan situasi yang saya hadapi. (O-WD)
			28. Saya membuat lelucon tentang betapa konyolnya masalah saya. (R)
	Behavioral disengagement	6. I've been giving up trying to deal with it.	6. Saya sudah berhenti mencoba untuk mengatasi masalah saya. (O-ND)
			6. Saya mengambil langkah mundur untuk sementara waktu untuk menenangkan diri. (R)
		16. I've been giving up the attempt to cope.	16. Saya sudah menyerah untuk mencoba menghadapi masalah.

Note. O-ND: Original item – Non-Dimension; O-WD: Original item – Wrong-Dimension; R: Recommended item.

On the other hand, for non-dimension items, it is necessary to conduct an initial exploration and identification of the concept inadvertently measured before proceeding with any item modifications. Before proceeding with item corrections and recommendations, it is crucial to realize that almost all of the non-DCV items (six out of seven) originate from the dysfunctional coping dimension. Out of these six, four fell into the wrong-dimension category (specifically, from thesub-dimensions of humor and venting). This implies that the adapted versions of these items were perceived by the panelists as being more aligned with emotion-focused coping strategies. Therefore, the solution lies in eliminating the connotation of emotion focus and strengthening the dysfunctional aspect by specifically emphasizing the nuances of venting and humor.

In the non-dimension category, three items were rated by the panelists as not measuring coping strategies. Among these, one item from the acceptance sub-dimension (emotion-focused coping) and two from the behavioral disengagement and denial sub-dimensions (dysfunctional coping) were considered not to measure coping strategies.

The panelists agreed that these three items did not measure coping strategies, but rather reflected individual states when faced problems, such as feelings of despair or denial. Therefore, the item revisions were made by eliminating the

sense of despair and denial, while emphasizing the dysfunctional aspects (in line with the two existing sub-dimensions) and focusing on emotions.

Some panelists also suggested that the items that did not measure coping strategies were actually unfavorable versions of items in the problem-solving dimension. This indicates the need for special consideration when conducting DCV evaluation on items designed as unfavorable. Panelists should be reminded that unfavorable can be assessed as highly consistent with the definition, not contradictory.

We realize that there is potential for additional complexity in evaluating the DCV of an unfavorable item. An item that is considered unfavorable for one dimension may be viewed as favorable in another. This occurs because sometimes two or more different dimensions in fact represent opposing categories, rather than simply being different. For example, the positioning of the dysfunctional coping dimension is often interpreted as being opposed to both problem- and emotion-focused coping.

Based on the revisions made to the items, which were constructed based on the evaluations and comments from the panelists, it is anticipated that the revised versions of the seven items are now more refined and classified as DCV items. Therefore, the 28 items of the Brief COPE scale (21 old versions and 7 revised versions) are expected to possess enhanced discriminant content validity in measuring the three dimensions of coping strategies (Carver, 1997). The parsimonious approach is believed to offer more benefits for the application of the Brief COPE scale in both research and clinical and positive psychology practice.

While the 14 sub-dimensions can still be utilized for more precise and comprehensive diagnoses, it is important to highlight that the purity of the model has not been investigated through DCV techniques. The application of the DCV approach to evaluate the purity of the 14 sub-dimensions poses certain technical challenges. In order to address this, it is imperative to gather panelists' evaluations of the 28 Brief COPE items, employing the 14 sub-dimensions. Each panelist would need to evaluate the items a total of 392 times, which represents a demanding undertaking. Nevertheless, embarking on this task is crucial to ensure the discriminant content validity of the Brief COPE scale for the 14 sub-dimensions model.

One of the limitations of this study relates to the constraints of the DCV approach in terms of the number of dimensions and their definitions. Unlike factor analysis techniques, which can extract factors equal to the total number of items, DCV techniques have limitations in determining the number and definitions of dimensions. This can potentially impact the accuracy and comprehensiveness of the results obtained.

Furthermore, the absence of specific software poses challenges to data collection and analysis. Without access to dedicated software, conducting in-depth analysis and generating desired outputs may be restricted. This limitation hinders the ability to fully explore the data and potentially uncover additional insights or patterns that could contribute to a more comprehensive understanding of the research topic.

It is important to acknowledge these limitations, as they may affect the generalizability and robustness of the findings. Future research endeavors should consider addressing them by employing alternative approaches or utilizing specialized software to enhance the analytical capabilities and ensure more comprehensive examination of the data.

Conclusion

This study, the first of its kind in Indonesia, examines the discriminant content validity of the

Brief COPE measurement instrument, and enhances its effectiveness. Furthermore, the study findings make a significant contribution to addressing the issue of dimensionality in coping measurement. Out of the 28 items in the Brief COPE, 21 demonstrated DCV, confirming their ability to effectively measure the intended coping strategies.

The study also identified four items that were originally designed to measure dysfunctional coping strategies but were perceived as functional, specifically reflecting emotional-focused coping. On the other hand, three items were found to be unrelated to measuring coping strategies, instead assessing feelings of despair or denial of reality. The proposed revisions for these items will greatly improve the accuracy and clarity of the Brief COPE as a reliable tool for assessing coping strategies. We hope that this pioneering study employing DCV will not be the last, but rather pave the way for subsequent research endeavors.[]

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Author Contribution Statement

Ide Bagus Siaputra: Conceptualization; Data Curation; Formal Analysis; Funding Acquisition; Investigation; Methodology; Project Administration; Resources; Software Director; Validation; Visualization; Writing Original Draft; Writing, Review & Editing; Another role. **Afinnisa Rasyida:** Conceptualization; Funding Acquisition; Methodology; Resources; Writing, Review & Editing. **Amanda Meuthia Ramadhanty:** Data Curation; Formal Analysis; Investigation; Methodology; Validation; Visualization; Wirting Original Draft; Writing, Review & Editing. **Noeroel Kentjono Endah Triwijati:** Conceptualization; Funding Acquisition; Methodology; Resources; Writing, Review & Editing.

Declaration of Generative AI and AI-assisted writing

During the preparation of this work the authors utilized CHATGPT-3.5 to improve the coherence, readability, and linguistic quality of the writing. After using this tool/service, the authors reviewed and edited the content as needed and take full responsibility for the content of the publication.

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