

Cross-cultural validation and psychometric properties of the Arabic Brief COPE in Saudi population

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ABSTRACT

Introduction: Coping strategies for stress tend to vary in different cultural. The Brief COPE (BC) is the most commonly used self-report instrument to identify the types of coping strategies used which has a total of 14 strategies with 28 items. The aim of this study was to translate into Arabic and validate the Brief COPE scale in the Saudi Arabian population.

Methods: A cross-sectional method was used to assess the reliability, validity, and cultural appropriateness of the Arabic version of the Brief COPE (A-BC) among 302 males and females (33.8% females).

Results: The test-retest reliability was strong at 0.8, and the principal component factor analysis yielded a 3-factor structure, namely 'active coping', 'passive coping', and 'support-seeking', with Composite Reliability scores of 0.84, 0.75, and 0.81 respectively. Confirmatory factor analysis indicated an acceptable factors structure.

Conclusion: The 3-factor structure of the A-BC was found to be a valid and reliable instrument among the Saudi population. This makes the scale useful in both clinical practice and clinical research.

KEYWORDS:

Coping strategies, validity, reliability, Saudi Arabia

INTRODUCTION

The cognitive theory of stress and coping has its origins in the transactional perspective, which takes into consideration the dynamic, mutually reciprocal or bidirectional relationship between the person and the environment.¹ Two processes have been proposed by Folkman, Lazarus, Gruen, and DeLongis² within this transactional framework, namely, cognitive appraisal and coping. These two processes are thought to be the critical mediators of the relationship between the person and stressors in their environment as well as immediate and long-term outcomes. According to the theory, cognitive appraisal involves two processes: primary and secondary appraisal.³ Primary appraisal is the evaluation of the person whether the incident being experienced is stressful or not. If it is stressful, the person considers the coping resources at their disposal for responding to the stressful incident, a process termed secondary appraisal. Lazarus and Folkman⁴ argue that the type of coping used depends on the extent to which the

stressful event is perceived by the person to be under the control of that person. The capabilities and skills that the person already possesses are thought to affect perceived control and hence primary appraisal of the event. The second process of Lazarus and Folkman's⁵ theory is coping, described as frequently changing cognitive and behavioural efforts to manage specific external and internal demands.

A variety of self-report scales have been used to measure coping strategies. For instance, Niiyama et al.,⁶ used a 19-item scale to assess the coping skills of nurses who experienced trauma in the workplace. Brodzinsky et al.,⁷ developed a 29-item scale for children and youth which included four categories of coping behaviours: assistance seeking, cognitive-behavioural problem solving, cognitive avoidance, and behavioural avoidance. Valentiner, Foa, Riggs, and Gershuny⁸ developed a scale of 26 items to measure coping skills in women who had experienced sexual and nonsexual assault. The Brief Approach/Avoidance Coping Questionnaire, consisting of 12 items, was developed and used by Finset et al.,⁹ in cohorts of students and patients. An abbreviated version of the 60-item Coping Orientation to Problems Experienced (COPE) Inventory, Carver's¹⁰ Brief COPE scale has been widely used to measure strategies used to cope with both stressful events and traumatic stress. It has 14 subscales with two items in each scale; Carver¹⁰ stated that this was because participants became impatient as a consequence of the redundancy and length of the original version, which consists of 15 subscales containing four items each. Responses to the items of the Brief COPE were rated on a four-point scale, with 1='I have not been doing this at all', 2='I have been doing this a little bit', 3='I have been doing this a medium amount' and 4='I have been doing this a lot'.

In terms of usage, Carver's¹⁰ Brief COPE has commonly been used in English and other languages. In a sample of Malaysian women undergoing treatment for breast cancer, Yusoff¹¹ examined the psychometric properties of the English version and found that the Brief COPE was valid and reliable when used with this population. The psychometric properties of a Spanish version and an English version of the Brief COPE were assessed by Perczek, Carver, Price and Pozo-Kaderman.¹² They recruited 148 English-Spanish bilingual undergraduate students (101 women, 47 men) at the University of Miami, USA. They found that the Spanish version subscales had Cronbach's alpha scores higher than those of the English version, which ranged from 0.62 to 0.94 and 0.57 to 0.93 for the Spanish and English versions respectively. Kim and Seidlitz¹³ conducted a study of 113 students in South Korean

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using a Korean version of the Brief COPE. The results showed that the coping skills scale could be improved by incorporating a greater emphasis on spirituality. A study in Brazil by Bridi, Loredou-Souza, and Fitjman et al.,¹⁴ to examine the coping strategies of 36 patients with bipolar disorder, found support for using the 14 coping strategies of the Brief COPE.

Various studies have examined the structure of the Brief COPE. For instance, in a sample of French-Canadian women with breast cancer, the factor structure of a French version of the Brief COPE was assessed.¹⁵ The results indicated a structure of eight factors: disengagement, self-distraction, active coping, using emotional social support from husband/partner, using emotional support from friends, religion, humour, and substance use.¹⁵ Another study was carried out on the general French population to validate another French version of the Brief COPE. Muller and Spitz¹⁶ recruited 1,834 French university students who responded to the Brief COPE in terms of perceived stress, self-esteem, and psychological distress measures. The factor analysis indicated an adequate fit between the expected theoretical structure and the observed one. A further study was conducted using the French version of the Brief COPE on 398 individuals.¹⁷ The principal component factor analysis illustrated a 4-factor structure, labelled: avoidance (10-item), social support (8-item), positive thinking (6-item), and problem solving (4-item).

In Turkey and the USA, differences in coping strategies were evaluated as predictors of university adjustment. A cross-cultural study was conducted on 1,143 university students in Turkey and the USA (695 Turkish, 448 American). The results showed that four subscales should be excluded, namely: 'venting', 'self-blame', and 'acceptance', due to low Cronbach's alpha scores, while 'using instrumental support' was excluded because of the low item-total correlations.¹

In Spain, the factor structure of a Spanish version was found to be the same as the intended structure of the Brief COPE.¹² The results showed that the subscale items of 'active coping' and 'planning' loaded together, and one item of the 'behavioural disengagement' subscale was poorly loaded, while another item loaded on 'positive reframing'. Therefore, a model of 12 factors was found.¹²

In Bosnia and Herzegovina, an evaluation of the factor structure of Carver's¹⁰ original Brief COPE was undertaken by Hadziosmanovic,¹⁸ using one sample from Bosnia (n=172) and one from the UK (n=225). The results supported two factors of the structure of the Brief COPE scale. These factors were labelled the 'processing' and 'avoidance' coping strategies. The 'processing' element has 14 items while the 'avoidance' element has 11 items, with Cronbach's alpha scores of 0.87 and 0.73 respectively in the Bosnia sample, and 0.70 and 0.80 respectively in the UK sample.

In China, the Chinese version was assessed by Zang, Hunt and Cox.¹⁹ It had the same quantity of items as the original Brief COPE,¹⁰ that is, 28. The whole scale had a Cronbach's alpha of .66, while the 14 subscales had a Cronbach's alpha of between 0.70 and 0.80, ranging from .42 to .91. The final version has two factors, namely, 'active' and 'passive' factors.

In Iraq, the structure of the Arabic version of the Brief COPE was assessed in a sample of 505 university students (199 males, 306 females) in Baghdad.²⁰ The results showed a structure of four factors, namely: seeking support coping strategies, active coping, non-problem focused coping, and substance use.²⁰

In Kenya, the 28 items of Carver's Brief COPE scale¹⁰ were evaluated among caregivers of family members living with HIV/AIDS in 134 Kenyan participants, the majority of whom were female (n=116). They study yielded five factors, with strong loadings on 'instrumental support' and 'emotional support'.²¹

In India, Carver's 28-item Brief COPE scale¹⁰ was assessed in South India.²² The results showed a 16-item scale with five factors, namely: active planning, religion, social support, substance use, and avoidant emotions.

The Brazilian-Portuguese version of the Brief COPE reported a revised 20-item version with a 3-factor solution, namely: religion, positive reframing, distraction, and external support.²³ The aim of the current study was to evaluate the psychometric properties of the Arabic version of the Brief COPE scale to identify underlying patterns of coping strategies in the Saudi population.

MATERIALS AND METHODS

Participants

In order to represent the Saudi population, consenting participants were recruited from different regions in Saudi Arabia. Thus, a snowball sampling by research assistants was used from the most populated area in Saudi Arabia. Participants were women and men with different levels of education. The aim of the study was explained to the participants, and the procedure for collecting data was described. The study was approved by the by the Research Ethics Committee at Taif University in Saudi Arabia.

Sample size determination

The sample size was calculated using the single population proportion formula:

$$n = \frac{p(1-p)Z^2}{E^2}$$

Where:

n is the sample size, Z is the value corresponding to level of confidence 0.05 and it was (1.96), P is the percentage occurrence of a state or condition (0.5), E is the margin of error (5%).

$$n = \frac{0.5(1-0.5)1.96^2}{0.05^2} \quad n = 384.16$$

However, the sample size was 302, and having a sample size of ≥ 300 for the population model is acceptable in a confirmatory factor analysis.

Measurement

The BC consists of 14 subscales with only two items in each scale; Carver¹⁰ stated that this was because participants

became impatient with the redundancy and length of the original 60-item version. The original BC was validated in a sample of 168 community residents who were exposed to a natural disaster: Hurricane Andrew, a Category 5 Atlantic hurricane that struck the Bahamas, Florida, and Louisiana in August 1992. Cronbach's alpha scores for the subscales ranged from 0.50 to 0.90. Factor analysis confirmed that the factor structure of the BC was similar to that of the full 60-item inventory. The responses to the items were 1='I have not been doing this at all', 2='I have been doing this a little bit', 3='I have been doing this a medium amount' and 4='I have been doing this a lot'. Cronbach's alpha was higher than 0.6 for 11 of the 14 scales. The internal consistency values of the scale 'acceptance', 'denial', and 'venting' were not adequate.¹⁰

Translation

Carver's¹⁰ Brief COPE scale was translated from English to Arabic, then back-translated to English by a different translator. Brislin's back-translation model was used.²⁴ The Arabic version of the BC was presented to a small group of Saudi Arabic native language speakers to ensure that all items were clear and understandable. The scale was then administered to a small group of Saudi men and women to ensure that all items were clear and understandable. This group was asked to examine whether there were any inconsistencies and whether any changes to the original items were needed to be made. Finally, they were asked to evaluate whether the items of the BC were suitable to be used among Saudi people. No modifications were made to fit the items of the scale with the concept of Saudi culture.

The final scale was administered to 20 participants (10 males, 10 females) to evaluate the extent to which the scale was clear and understandable. The participants were asked to state whether the items were readable and understandable. Thereafter, the final version of the Arabic BC was used.

Procedure

Using an online survey, 302 questionnaires were administered through the internet, shared via the social media. The test-retest reliability between the first and second test of the total score of the scale and both subscales was conducted on 28 participants after 15 days.

Statistical analysis

Data analyses was conducted by the author on 302 participants with complete data using SPSS.22 and SPSS-AMOS software. Factor analysis was used to assess the A-BC scale structure. In addition, confirmatory factor analysis was conducted to assess convergent validity. The level of Composite Reliability was another guideline used to review convergent validity. Pearson's correlation coefficient was computed to examine test-retest reliability as well as the correlations between the subscales themselves and the total score of the A-BC scale.

RESULTS

Sample characteristics

Participants in this study were 302 Saudi adults (66.2% male), aged between 18 and 59 years (mean=33.76, SD 8.37),

with differing levels of education, high school (25.5 %), undergraduate (58.9%), and postgraduate (15.6%).

Response distributions for each item including floor and ceiling effects

For additional assessment of the psychometric properties of the A-BC, numerous measures were used. First, data completeness was assessed; this was good for all 28 items, indicating that there were no items missing. Second, response distributions for each item were analysed and this showed that all response categories were used for all items. Response distributions tended to be skewed towards the positive or negative regarding each item, with significant floor and ceiling effects indicating that the items tap a wide range of coping effects regarding the A-BC factors. In terms of the 'active' coping factor, a total of <40% of respondents selecting 'I have been doing this a lot' or 'I have been doing this a medium amount' indicated that an item shows significant ceiling effects. However, the 'active' coping factor also showed floor effects as <15% of respondents selected 'I have not been doing this at all'. Regarding the 'passive' coping factor, a total of <40% respondents selecting 'I have not been doing this at all' or 'I have been doing this a little bit' indicated that an item shows significant ceiling effects. However, the 'passive' coping factor also had floor effects as <15% of respondents selected 'I have been doing this a lot'. 'Seeking support' showed significant ceiling effects with a total of >40% of respondents selecting 'I have been doing this a medium amount' and floor effects as <15% of respondents selected 'I have not been doing this at all'.

Factor structure (Principal Components Analysis (PCA))

The 14 factors produced in the study data did not fit the structure advocated. Therefore, the total scores of the A-BC were obtained by summing across all items. Following this, a test of normality was carried out. Multivariate normality of the items was assessed statistically on Mardia's normalised estimate of multivariate kurtosis in the form of the critical ratio of kurtosis in the output. A critical ratio of kurtosis of 1.06 indicates multivariate normality. Exploratory factor analysis of the scale was performed using the principal components method with Equamax rotation. Initially, the sampling adequacy and sphericity were tested; the Kaiser-Meyer-Olkin (KMO) value was 0.707, exceeding the value of 0.6, while the value of Bartlett's test of sphericity was statistically significant ($p < 0.001$), supporting the factorability of the correlation matrix. These two tests presented that the data were suitable for factor analysis. A 3-factor solution resulted and explained 33.6% of the variance, which was consistent with the scree plot as shown in Figure 1.

A 3-factor structure incorporating adaptive and maladaptive ways of coping, or 'active' and 'passive' coping, is more appropriate with a minimum loading of 0.35. This result is one item less than the number of items on Carver's Brief COPE scale, where the factors were reduced from 14 to 3 factors only. The number of factors extracted from the factor analysis is theoretically consistent with the concept of coping and also with the results of other factor analysis studies.

The first factor included all items from 'active coping', 'planning', 'positive reframing', 'acceptance', 'humour',

Table I: Brief COPE subscales and their loadings.

	BC subscales	Items	Component A-BC new subscales		
			Active coping	Passive coping	Seeking support
1	Active coping	1-I've been concentrating my efforts on doing something about the situation I'm in.	0.358		
2	Planning	2-I've been thinking hard about what steps to take.	0.372		
3	Positive Reframing	1-I've been trying to see it in a different light, to make it seem more positive.	0.647		
4	Acceptance	1-I've been accepting the reality of the fact that it has happened.	0.442		
5	Humour	1-I've been making jokes about it.	0.315		
6	Religion	1-I've been trying to find comfort in my religion or spiritual beliefs.	0.440		
9	Self-distraction	1-I've been turning to work or other activities to take my mind off things.	0.372		
11	Venting	1-I've been saying things to let my unpleasant feelings escape.	0.434		
15	Acceptance	2-I've been learning to live with it.	0.624		
16	Active coping	2-I've been taking action to try to make the situation better.	0.671		
17	Planning	1-I've been trying to come up with a strategy about what to do.	0.531		
18	Positive reframing	2-I've been looking for something good in what is happening.	0.663		
19	Humour	2-I've been making fun of the situation.	0.507		
20	Religion	2-I've been praying or meditating.	0.404		
10	Denial	1-I've been saying to myself "this isn't real".		0.598	
12	Substance use	1-I've been using alcohol or other drugs to make myself feel better.		0.377	
13	Behavioural disengagement	1-I've been giving up trying to deal with it.		0.600	
23	Self-distraction	2-I've been doing something to think about it less, such as going to movies, watching TV, reading, daydreaming, sleeping, or shopping.		0.453	
25	Venting	2-I've been expressing my negative feelings.		0.373	
26	Substance use	2-I've been using alcohol or other drugs to help me get through it.		0.457	
27	Behavioural disengagement	2-I've been giving up the attempt to cope.		0.591	
14	Self-blame	1-I've been criticising myself.		0.402	
24	Denial	2-I've been refusing to believe that it has happened.		0.593	
28	Self-blame	2-I've been blaming myself for things that happened.		0.446	
7	Using emotional support	1-I've been getting emotional support from others.			0.678
8	Using instrumental support	1-I've been trying to get advice or help from other people about what to do.			0.689
21	Using emotional support	2-I've been getting comfort and understanding from someone.			0.732
22	Using instrumental support	2-I've been getting help and advice from other people.			0.807

Table II: Internal consistency

Brief COPE subscales	Internal consistency (Cronbach's alpha)
1. Active coping	0.23
2. Planning	0.34
3. Positive reframing	0.56
4. Acceptance	0.46
5. Humour	0.29
6. Religion	0.41
7. Using emotional support	0.62
8. Using instrumental support	0.67
9. Self-distraction	0.40
10. Denial	0.50
11. Venting	0.31
12. Substance use	0.66
13. Behavioural disengagement	0.65
14. Self-blame	0.70

Table III: Goodness-of-fit indices for the A-BC model

Goodness-of-fit indices	E-service quality model
X2	438,511
Df	300
X2/df	1.462
RMSEA	0.039
CFI	0.924
TLI	0.904
NFI	0.800
IFI	0.927
RFI	0.749

Note: RMSEA = Root-Mean-Square Error of Approximation; CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; NFI = Normed Fit Index; IFI = Incremental Fit Index; RFI = Relative Fit Index.

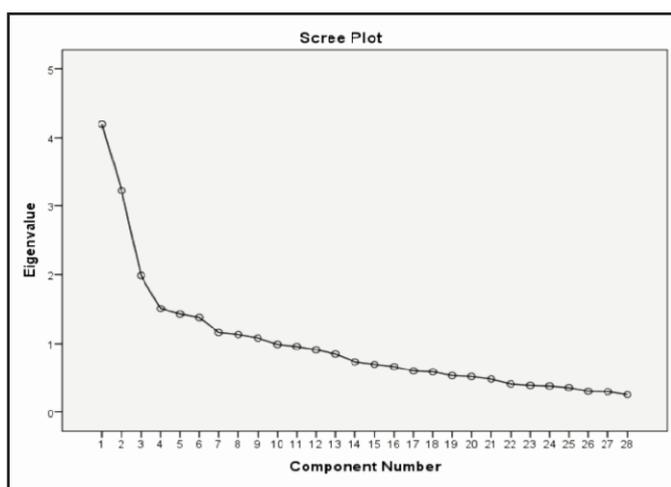


Fig. 1: Scree plot of the A-BC.

'religion', and one item from 'self-distraction', and one from 'venting'. This factor was named 'active coping'. The score-means higher in 'active coping' are in 'active coping', 'positive reframing' and 'acceptance', whereas the score-means lower in 'active coping' are in 'humour', 'planning' and 'religion'. The second factor included all items from 'denial', 'substance use', behavioural disengagement', 'self-blame', and one item from 'venting', and one item from 'self-distraction'. This factor was labelled 'passive coping'. The score-means higher in 'passive coping' are 'behavioural disengagement', 'denial' and 'self-distraction', whereas the score-means lower in 'passive coping' are in 'substance use' and 'self-blame'. The third factor included all items from 'using emotional support', and 'using instrumental support', and was named 'support-seeking'. The loading of item '1-I've been making jokes about it' was .315. When this item was removed, Cronbach's alpha becomes 0.62. Cronbach's alpha does not significantly improve with the deletion of the item '1-I have been making jokes about it', therefore the decision was made to compute the constructs with the item included. The score-means higher in 'support-seeking' are in both 'using instrumental support' and 'using emotional support'. Table I below presents the 3-factors structure.

Internal consistency

In order to examine the internal consistency of the BC, Cronbach's alpha was used. The alpha scores are presented

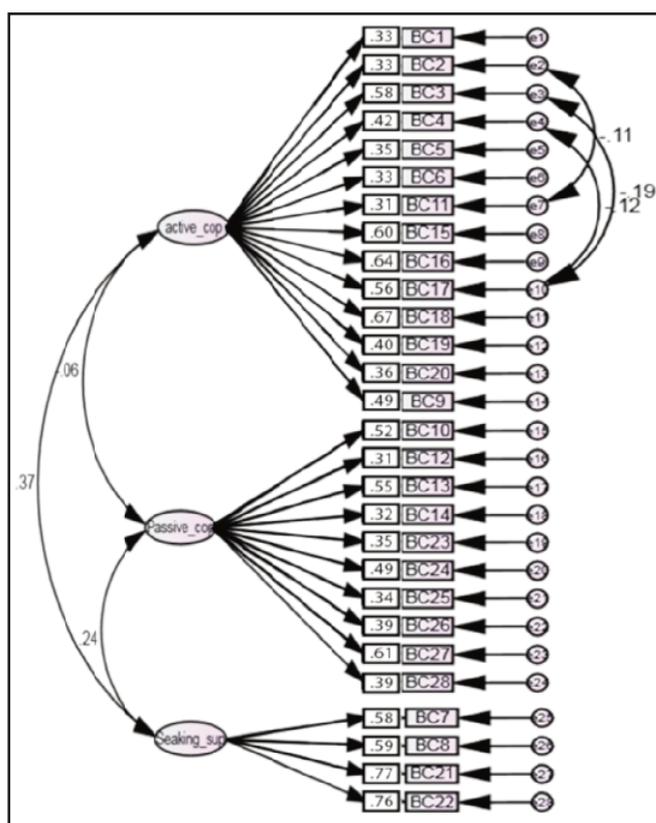


Fig. 2: Parameter estimates for the sample (N=302).

in Table II below. The minimum acceptable reliable score of the scales of only two items is 0.50. The scores of the A-BC scale ranged from 0.23 to 0.70.

Confirmatory Factor Analysis (CFA) with path diagrams

The validity and reliability of the A-BC scale was tested. It was then important to determine the fit of the A-BC model. The results of the CFA for the adapted A-BC scale as presented in Figure 2 show a good fit between the data (N=302) and the measurement model. The measurement model has chi-square=438,511 p<0.05. The ratio of the relative chi-square to its degree of freedom, χ^2/df , was 1.4. The data revealed that the fit statistics for the revised measurement model is good compared to the hypothesised measurement model. All of the fit indicators in Table III, the GFI=0.924 and TLI=0.904, fulfil the threshold of 0.90, the standard deemed important for model fit. Nevertheless, the root-mean-square error of

approximation (RMSEA=0.039) indicated a good fit of the hypothesised model. As a result of good fit based on the goodness-of-fit indices, this model has to be revised.

Composite Reliability

The level of Composite Reliability (CR) is another guideline for reviewing convergent validity. CR scores were 0.84, 0.75, and 0.81 for the factors 'active coping', 'passive coping' and 'support-seeking' respectively.

Test-retest reliability

Test-retest reliability was computed to confirm that the Arabic BC was constant across time. Twenty-two male and female participants were again recruited after 15 days to complete the scale. The results showed that the correlations between the test and retest were strong, with a total score .80. The test-retest reliability of the four clusters ranged from .87 for 'active coping', .80 for 'passive coping' and .93 for 'support-seeking' coping. These findings suggest that the Arabic BC scale has acceptable reliability over time.

DISCUSSION

This study found that the A-BC as a self-report measurement can be used to assess the coping strategies among Saudi Arabic populations. The items of the A-BC were clear and understandable for an Arabic-speaking population and the participants reported no difficulty in understanding or reading the items. Moreover, to maximise generalisability, the participants – both males and females – were recruited from different population regions within Saudi Arabia, with ages ranging from 18 to 60 years, and of differing education levels.

In addition, this study assessed the psychometric properties of the A-BC and the factor analysis yielded a revised 28-item version with three factors of the original 14. The psychometric properties of the A-BC with three factors were appropriate. Several studies that performed exploratory factor analysis (EFA) on the Brief COPE showed different factors,¹¹ including Armstrong, Shakespeare-Finch, Shochet.²⁶⁻²⁸ On the other hand, other studies reported a 3-factor structure in the EFA, including Brasileiro, Orsini, Cavalcante, Bartholomeu, Montiel, Costa, Costa.^{23,27,28}

The confirmatory factor analysis results showed the expected factor structure with 3-factors. The 3-factors structure is an acceptable fit as indicated by the RMSEA, CFI, and standardised RMR (root mean square residual). In addition, the level of CR (criterion-referenced tests) scores were .84, .75, and .81 for the factors 'active coping', 'passive coping' and 'support-seeking' respectively, with an acceptable CR value being 0.7 and above, according to Hair, Black, Babin, Anderson and Tatham.³⁰

In our study the use of subscale items from 'active coping', 'planning', 'positive reframing', 'acceptance', 'humour', 'religion' and one item from 'self-distraction' as well as one item from 'venting', formed a single factor (factor 1) labelled 'active coping'. Some studies support this finding in different ways. The 'planning', 'active coping' and 'acceptance' subscales grouped together in Kimemia, Asner-Self and Daire's²¹ study. This study found that 'acceptance of the

stressor' is an essential condition for both 'planning' and 'active coping' which suggests that acceptance is likely to increase as a care recipient's situation deteriorates and physical signs of their problem continue to manifest.³¹ Other studies reported a correlation between 'positive reframing' and 'humour'.^{9,32} This finding suggests that people who are able to see difficult circumstances in a positive light and reframe them positively are also likely to be able to laugh at these situations, that is, use of humour. Another study found that positive reframing correlated with religion and had a strong inverse relationship with humour.²¹ This suggests that caregivers who turned to religion as a coping response were more likely to better reframe the situation. In the current study, the participants are all Muslims in terms of their religion, and they tend to turn to religion as a coping-strategy. Further research on other faiths would be helpful. The 'humour' item in this factor did not significantly improve the Cronbach's alpha with the deletion of the item '*I have been making jokes about it*'; consequently, the constructs were computed with this item included.

Regarding 'self-distraction', only one item loaded on this factor (*'I have been turning to work or other activities to take my mind off things'*). Some studies propose that there are levels of self-distraction that are healthy, and that might even be made it possible for individuals to learn to adjust to challenging circumstances.^{5,33} Therefore, in our study, this item was grouped with 'active coping' as a positive coping strategy.

In terms of 'venting', only one item loaded on this factor (*'I have been saying things to let my unpleasant feelings escape'*). Carver, Scheier and Weintraub³³ reported that this could be a useful coping response in some circumstances. The loading in the current study accepted this meaning and grouped this item with the others in this factor, with a suggestion of further research.

In addition, all the items from the subscales of 'denial', 'substance use', 'behavioural disengagement' and 'self-blame', as well as one item from the 'self-distraction' subscale and one item from 'venting' subscale, formed a single factor (factor 2), named 'passive coping'.

Previous research has labelled the 'self-blame' and 'behavioural disengagement' subscales as indicative of maladaptive coping.^{34,35} In addition, 'substance use' and 'denial' were also found to be maladaptive coping strategies in some studies.^{36,37} Substance-use strategies were found to be a significant risk factor and probably represent a trait coping strategy that is easily applied in times of distress.²² Other studies reported that those psychologists who used 'denial' as a coping response had worse depression³⁷ whereas Coolidge, Segal, Hook and Stewart³⁸ found that denial was related to raised anxiety among anxious adults.

Regarding 'self-distraction', only one item was loaded on this factor (*'I have been doing something to think about it less, such as going to movies, watching TV, reading, daydreaming, sleeping, or shopping'*). Some studies view this as a form of denial that makes it unlikely for individuals to deal with their stressor in a healthy way.^{5,33} Therefore, in the present study this item grouped with 'passive coping'.

In terms of 'venting', only one item loaded on this factor ('I have been expressing my negative feelings'). A study reported that this could be functional in the early period of the distressing circumstances. However, if this continuous for a longer period of time, it can impede adjustment strategies.^{4,22} The loading in our study supported this finding and grouped this item with the others in this factor, with a suggestion for further research.

However, in our study, items from the subscales 'using emotional support' and 'using instrumental support' loaded onto a different factor (factor 3), named 'support-seeking'. This finding is supported by several studies such Carver's¹⁰, and Kapsou, Panayiotou, Kokkinos and Demetriou's³⁹ on Greek adults, as well as Mohanraj, Jeyaseelan, Kumar, Mani, Rao, Murray and Manhart's²² on South Indian people living with HIV/AIDS. In fact, the two types of support grouped together in Carver, Scheier and Weintraub³³ and in original factor analysis studies. However, for theoretical reasons, they were retained as separate factors in order to distinguish between emotion-focused emotional support (seeking support in terms of sympathy and understanding) and the problem-focused nature of instrumental support (seeking advice or information).²² Therefore, these two support roles mostly occur together, additionally supporting the 'joint social-support' factor that surfaced in the factor analysis.

Nevertheless, the loadings of items on different factors point towards 'venting' and 'self-distraction' as representative of an adaptive or maladaptive coping response in some previous studies.^{5,33} There is a lack of previous research on coping strategies in Saudi Arabia. Therefore, further research on the BC would be helpful in this regard. Another limitation of this study is the comparison of results between different studies exploring the structure of the BC. There is the lack of consistency in these applications such as different socioeconomic status, gender, levels of education, and sample size. Nevertheless, the sample size in this study was 302, and having a sample size of ≥ 300 for the population model is acceptable in a confirmatory factor analysis.

The A-BC followed a systematic procedure for a cross-cultural sample, taking into consideration sociocultural differences for instrument adaptation. In this study, the A-BC applied to the general population in Saudi Arabia. In addition, the study participants had not undergone any patently stressful circumstances. Therefore, further studies should include Saudi individuals in different circumstances and contexts, and should use mixed methods in order to explore the dimensionality of the A-BC.

CONCLUSION

The A-BC version does not present good psychometric properties for the 14 subscales reported in the original Brief COPE. However, the A-BC showed a three-factor structure with appropriate psychometric properties in the current study. This A-BC version is an effective assessment instrument in clinical care settings and could be used in various ways. Furthermore, this culturally adapted A-BC version provides a targeted instrument to screen the effectiveness of interventions and changes in coping capacity

over time in Saudi Arabia and in other Arabic speaking people.

CONFLICT OF INTEREST

The author declares no conflict of interest regarding the publication of this manuscript.

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