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Article

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A psychometric evaluation of the Arabic version of the consumers' ethnocentric tendencies scale

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ABSTRACT

Ethnocentrism refers to consumers' tendencies to favor products and services that are produced in their own country over those produced in foreign countries. The consumers' ethnocentric tendencies scale (CETSCALE) was developed to assess consumers' buying behavior towards foreign-made products. The current study examines the psychometric features of the CETSCALE's Arabic edition. The scale was first rendered into Arabic utilizing the well-established back-translation process. An online version of the translated CETSCALE was administered to 703 Saudi participants. Both the reliability and validity of the scale were examined, and a two-dimensional structure of the scale was confirmed. Measurement invariance across gender was examined and the robustness of the results was confirmed using a network psychometrics approach. Findings indicate that the Arabic version of the CETSCALE is psychometrically vigorous and can be confidently utilized to examine adult Arab consumers' ethnocentric tendencies.

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SUBJECTS

Testing, Measurement and Assessment;
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Research on cross-national contexts has largely focused on understanding consumers' behavior towards domestic products compared to foreign products. Within this vein, Shimp and Sharma (1987) pioneered the idea of consumer ethnocentrism to measure consumers' buying behavior towards foreign-made products. Ethnocentrism, in this context, refers to consumers' tendency to favor products and services that are produced in their own country over those produced in foreign countries. Ethnocentrism is an important personality trait that influences consumers' behavior, intentions, and purchase decisions with regards to choosing between domestic or imported products. It has been suggested that high levels of ethnocentrism may cause negative attitudes toward foreign products and reduced purchase intentions (Ortega-Egea & García-de-Frutos, 2021). However, corresponding studies have also suggested that factors such as product quality and brand reputation can minimize the detrimental effects of ethnocentrism (see Trivedi et al., 2023).

In the measurement of consumer ethnocentrism, previous studies have typically relied heavily on the consumer ethnocentrism tendencies scale (CETSCALE) that was originally developed by Shimp and Sharma (1987) in the United States (US). Extensive empirical research has generally confirmed the validity and consistency of the CETSCALE (see Netemeyer et al., 1991; Ramadania et al., 2023). However, most of these studies were undertaken within Western countries with limited applicability to non-Western contexts. While important contributions have been made in the Arab countries adopting the CETSCALE for comprehending consumer ethnocentrism (e.g., Sulphrey & Faridi, 2020), a thorough literature review

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reveals a gap in the validation of the scale within this context. This absence is particularly surprising, given the significance of cross-national consumer research, and it underscores the urgent need for further examination and rigorous methodological analysis. In addition, extant studies within the Arab context have simply adapted different versions of the 17-item included in the original scale and reported either mixed results or in some cases contradictory findings (see Ben Mrad et al., 2014).

The purpose of the present study is to test the psychometric properties of the Arabic version of the CETSCALE among consumers within the Kingdom of Saudi Arabia (KSA). It has been argued that language and cultural differences in the region being measured necessitate an assessment of the degree to which a scale measures the same construct across different groups (Alhejji et al., 2016; Hamlin et al., 2023). Without ensuring measurement invariance, a study into human behavior could lack meaningful interpretation and the development of practical implications of its findings. The development of several analytics methods, such as confirmatory factor analysis (CFA) (Stark et al., 2006), has largely advanced the consistency of instruments across different situations and among diverse consumers. This paper, therefore, responded to the call for more research that assess the validity of the scale outside of the Western contexts (Al Ganideh & Awudu, 2021; Karoui et al., 2022). The present study aims to be the first to conduct measurement invariance of the CETSCALE in an Arab context.

The current study extends the available body of marketing and cross-national research and makes two important contributions. First, it addresses the critical need for further validating the CETSCALE to recognize that the impact of cultural variations on the interpretation and understanding of consumer behavior in Arab countries as being distinct from their impact on Western countries. This is to ensure that the CETSCALE is valid and relevant to the cultural nuances of the Arab context. From a cross-cultural perspective, marketing managers should understand consumers' attitudes within various contexts (Mkedder & Bakır, 2023). The existence of a global market increases the importance of exploring consumers' choices between foreign and local products and services (Pentz et al., 2013).

Second, as the psychometric properties of the CETSCALE provide an opportunity for future research seeking to assess various psychological constructs across and within different cultural contexts, by taking a network psychometrics approach, the present study contributes to the wider CETSCALE psychometric testing studies (Balabanis & Diamantopoulos, 2004; Suh & Kwon, 2002). It moves away from the argument that most research is biased toward a Western perspective and aligns with the evolving landscape of global research (Alhejji et al., 2018), fostering inclusivity and a more comprehensive understanding of consumer behavior.

Literature review

Consumer ethnocentrism studies and CETSCALE validity in an Arab context

The CETSCALE has largely been used to understand consumers' behavior and attitudes toward domestic products when compared to foreign products. To understand consumer behavior, the CETSCALE was originally developed by Shimp and Sharma in 1987, with the scale created to better understand US consumer perspectives on purchasing imported products. CETSCALE was developed with a specific focus on measuring tendency rather than attitudes. Both terms are treated equally in the literature. However, there is a clear distinction between them as attitudes are much closer related to consumers' feelings towards a specific product, which was not part of Shrimp and Sharma's original intention when they created the scale in 1987 (Sohail & Opoku, 2016).

Several studies undertaken in the Arab region have used CETSCALE to examine Arab consumer ethnocentrism. For instance, Karoui and Khemakhem (2019) had employed a shortened version of CETSCALE (10-item version) to examine the relationship between consumer ethnocentrism and their willingness to purchase domestic products. A subsequent study by Karoui et al. (2022) employed CETSCALE to measure the effects of Islamic religiosity on Tunisian consumers' ethnocentric feelings concerning imported products in the post-Arab Spring period. For this purpose, they used a shortened six-item CETSCALE adopted from the work of Altıntaş and Tokol (2007). The result indicated that the relationship between consumer ethnocentrism and tendency to purchase domestic products depends on consumers' attitudes towards country-of-origin.

Al Ganideh and Al Taei (2012) examined Jordanian consumers' ethnocentric tendencies towards Arabian products. Although they used a 10-item CETSCALE, they reported the revised scale was

determine to be a useable substitute. Ben Mrad et al. (2014) employed a 17-item CETSCALE to examine Lebanese and Tunisia ethnocentric tendencies towards US products and revealed that consumers from both countries had different perceptions of motivations regarding US products. Other studies, such as Sohail (2005) and Assad (2007), focused on measuring Saudi consumers' perceptions toward foreign products. However, these studies conducted in the Saudi context were much more about perception of the country of origin's image rather than consumer ethnocentrism.

The mixed findings of the studies cited above have raised concerns regarding Arab consumers' ethnocentrism behavior within the Arab context. In response to this, Jiménez-Guerrero et al. (2020) conducted an extensive review and noted that CETSCALE has received preferential use in the literature to understand consumers' ethnocentrism, particularly in the Arab region. Most studies in the Arab region have used CETSCALE in its original form, without paying attention to language and cultural differences. Despite the original scale being unidimensional, research on social ethnocentrism suggests that the concept is broader and encompasses more than one dimension due to cultural differences (Jiménez-Guerrero et al., 2014; Sepehr & Kaffashpoor, 2012).

In addition, current CETSCALE studies undertaken across various continental do not account for the multidimensionality of the scale; instead, they assume that the scale is unidimensional and conduct their analysis accordingly. Studies in the Arabic region also appear to ignore the dimensionality of the scale; instead, these studies have measured reliability and construct validity (Sulphey & Faridi, 2020). Many studies have questioned the validity of using the single dimension of CETSCALE. Al Ganideh and Al Taei (2012) examined consumer ethnocentrism among Jordanians from an ethnic group perspective and confirmed the scale's internal consistency; however, the dimensionality of the scale was not investigated.

Consumer ethnocentrism studies and CETSCALE validity in global context

As indicated above, most studies using CETSCALE investigate Western contexts and have confirmed the unidimensionality and internal consistency of the scale (for example, Kwak et al., 2006; Luque-Martínez et al., 2000; Ramadania et al., 2023). In contrast, studies in Malaysia, the Netherlands, Russia, and India, question the validity of the unidimensionality of CETSCALE and have argued that it can be used to measure more than just to causal or influencing factors on ethnocentrism (Abd Ghani & Mat, 2017). Following methodological validation, Bawa (2004) recommend that the scale be used to measure three to four factor solutions. However, Jiménez-Guerrero et al. (2014) noted that the majority of empirical studies that found CETSCALE to be multidimensional did not use the original CETSCALE as created by Shrimp and Sharma in 1987. Instead, such empirical studies used a modified type of the scale to include fewer items. A number of contributions support the 17-item generated by Shimp and Sharma (1987) in their original languages such as Douglas and Nijssen (2003) and Altıntaş and Tokol (2007), who translated the scale into Dutch and Turkish, respectively.

The CETSCALE was subject to validation in a number of studies subsequent to the original work. As a first attempt toward validation, Netemeyer et al. (1991) confirmed the reliability of the CETSCALE in other countries such as France, Japan, and Germany (e.g., Sugiura & Sugiura, 2023). It has been concluded that the scale has global utility; nonetheless, they reported that the scale had an issue with nomological validity.

In the same vein, similar studies have been carried out to confirm the validity of CETSCALE within an aim to ensure the internal coherence and dimensionality of the scale. The results reported from these studies provided a consensus over the internal consistency of CETSCALE; however, the results were mixed regarding the unidimensionality of the scale. For instance, studies into validating the methodological process used in conjunction with CETSCALE confirmed the unidimensionality of the scale (Netemeyer et al., 1991; Lassar et al., 1995; Kaynak & Kara, 2002). Whereas Kucukemiroglu, 1999, and Douglas and Nijssen (2003) reported that the scale is multidimensional.

The number of studies that validate the scale as a single dimension far exceeds the studies that reported otherwise. Those studies that confirm the unidimensionality of the scale originate from the US, Japan, South Korea, Russia, Spain, and Cyprus. It is observed that the findings of the unidimensionality versus the multidimensionality of the scale vary in different cultural contexts (Trivedi et al., 2023), and the literature does not provide a particular pattern of findings that relate the tested or perceived dimensionality of the scale to a specific region or context.

In addition, studies that supported the multidimensionality of CETSCALE reported the emergence of between two to four factors affecting consumer behavior measured by the scale. For example, the scale validation process by Marcoux et al. (1997) resulted in three factors, and these factors were able to explain about 53% of the total variance. These factors are; protectionism, socio-economic conservatism, and patriotism.

The CETSCALE study that translated the measure into Dutch reported two factors that emerged from a shortened, 10-item version of the scale (Douglas & Nijssen, 2003). Although the modified CETSCALE was found to be a good substitute, their study concluded with an additional factor being the absence of local production. Sepehr and Kaffashpoor (2012) carried out a study of Iranian consumers using back translation from Persian to English; using both exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) the CETSCALE was validated to have a single dimension.

Overall, the literature is inconclusive about the dimensionality of the scale. Most studies support the unidimensionality of the scale, while a reduced number argue that the scale is multidimensional. It is evident from the literature that the inconclusive results can be attributed to several reasons, such as; the use of an adapted or the original scale, the cultural context playing a vital role in interpreting the discrepancies, the use of the short form of the 17-item scale or the original scale. Some methodological issues in the validation process could also explain the differences in the outcome when testing for dimensionality, such as the use of robustness tests may offer different results compared to the implementation of CFA and EFA analyses. An inappropriate or inaccurate approach to translation can increase the biasness of the results leading to an inappropriate validation process.

The purpose of this paper is to assess the psychometric features of the Arabic version of the CETSCALE among Saudi consumers. The results aim to contribute valuable insights to the understanding of consumer ethnocentrism in the context of the Saudi market.

Method

Sampling and data collection

To assess the CETSCALE's psychometric qualities, data were collected online. An anonymous online survey and a snowball method of sampling were used to gather respondents. The survey was created using the Google Forms online application and promoted on several social media channels such as Facebook, Instagram, LinkedIn, and Twitter. Participation was voluntary and respondents were requested to electronically sign an informed consent form. Respondents received no compensation for their participation.

The 17-item CETSCALE adapted from Shimp and Sharma (1987) was measured using a 5-point of Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The questionnaire was first drafted in English and then back translated into Arabic before undergoing a double translation, involving two steps. First, two bilingual specialists translated the original 17-item from English to Arabic. Second, the identical items were retranslated back into English by another bilingual specialist. The back-translation method did not identify any problematic items. However, some items were paraphrased to ensure translation equivalence. To ensure more accurate and meaningful responses, the original 17-item CETSCALE developed originally in English was included in the online link along with the Arabic translation.

The data were collected from a sample of 703 individuals in Saudi Arabia, comprising 248 males and 455 females. Educational attainment varied among the sample, with 61 participants having no formal education, 82 holding a high school diploma, and 503 possessing a Bachelor's degree. The age distribution showed a mean age of 31.45, with a standard deviation of 11.93.

Results

Descriptive statistics

Table 1 shows measures of central tendency, skewness, and kurtosis for each item. Byrne and Campbell (1999) contended that a normal distribution may be proven when the kurtosis and skewness values are

between -1.5 and $+1.5$. Table 1 shows that all such values are in this range, indicating that all items follow a normal distribution. Figure 1 plots the response distribution across all items. Figure 1 presents that most respondents have somewhat positive views toward domestic product preferences. Figure 2 shows Pearson's correlation coefficients among the scale items. A closer look at this graph indicates that all items are positively correlated. However, no correlation was found to be above 0.8, suggesting the absence of the multicollinearity problem.

Table 1. Descriptive statistics.

Item	mean	SD	Skewness	Kurtosis
CETSCALE1	3.36	1.05	-0.02	-0.85
CETSCALE2	3.54	1.13	-0.38	-0.83
CETSCALE3	3.91	0.90	-0.59	-0.18
CETSCALE4	3.14	1.17	0.04	-0.94
CETSCALE5	2.26	1.06	0.91	0.41
CETSCALE6	2.33	1.02	0.84	0.28
CETSCALE7	2.30	1.07	0.79	0.03
CETSCALE8	2.83	1.12	0.21	-0.78
CETSCALE9	3.53	0.98	-0.32	-0.47
CETSCALE10	3.36	1.06	-0.25	-0.66
CETSCALE11	2.95	1.02	0.24	-0.54
CETSCALE12	3.25	1.06	-0.18	-0.73
CETSCALE13	3.37	1.04	-0.28	-0.57
CETSCALE14	2.22	0.96	0.91	0.74
CETSCALE15	2.66	1.12	0.36	-0.69
CETSCALE16	3.83	0.93	-0.87	0.64
CETSCALE17	3.34	1.04	0.81	0.23

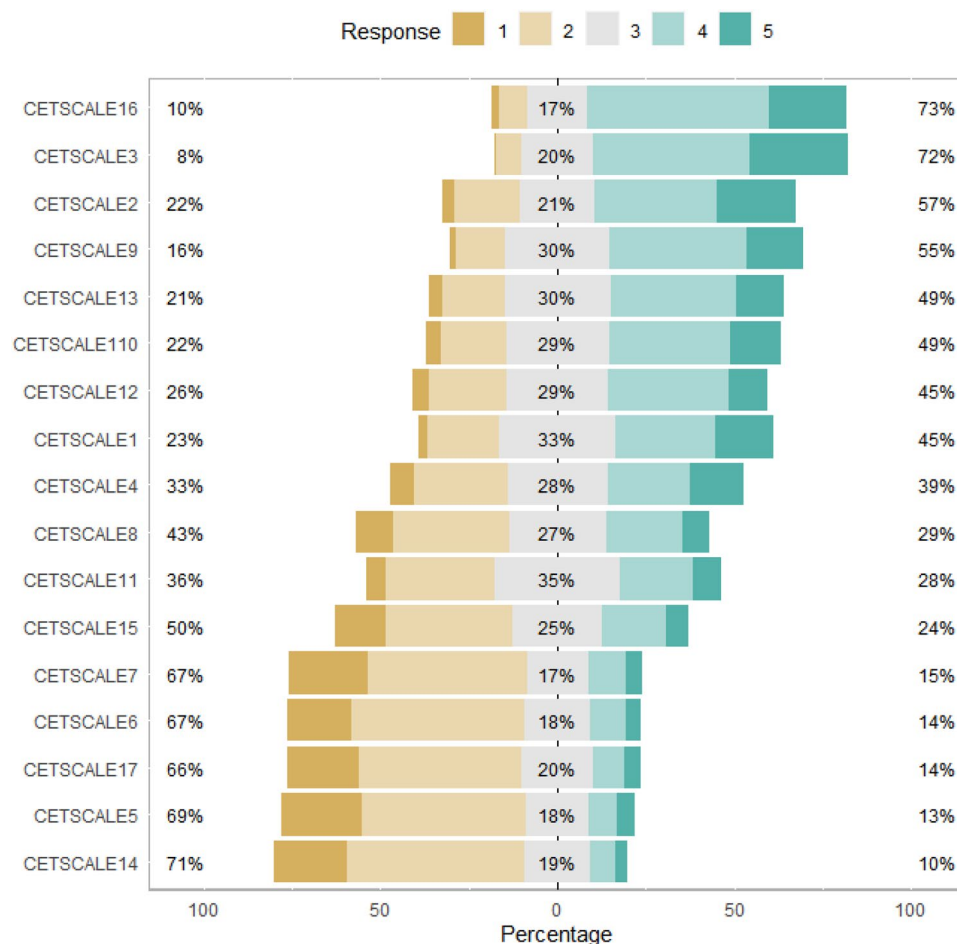


Figure 1. Distribution of the CETSCALE items responses across the study sample.

Reliability analysis

Table 2 shows Cronbach's alpha reliabilities for the CETSCALE and reliabilities if an item is deleted. Cicchetti (1994) argued that reliability > 0.70 is considered acceptable. Based on the reliability analysis reported in Table 1, it appears that CETSCALE has acceptable reliability. Almost all inter-item and corrected item-total correlations exceeded 0.50, indicating medium to strong associations among the scale items (Ferketich, 1991).

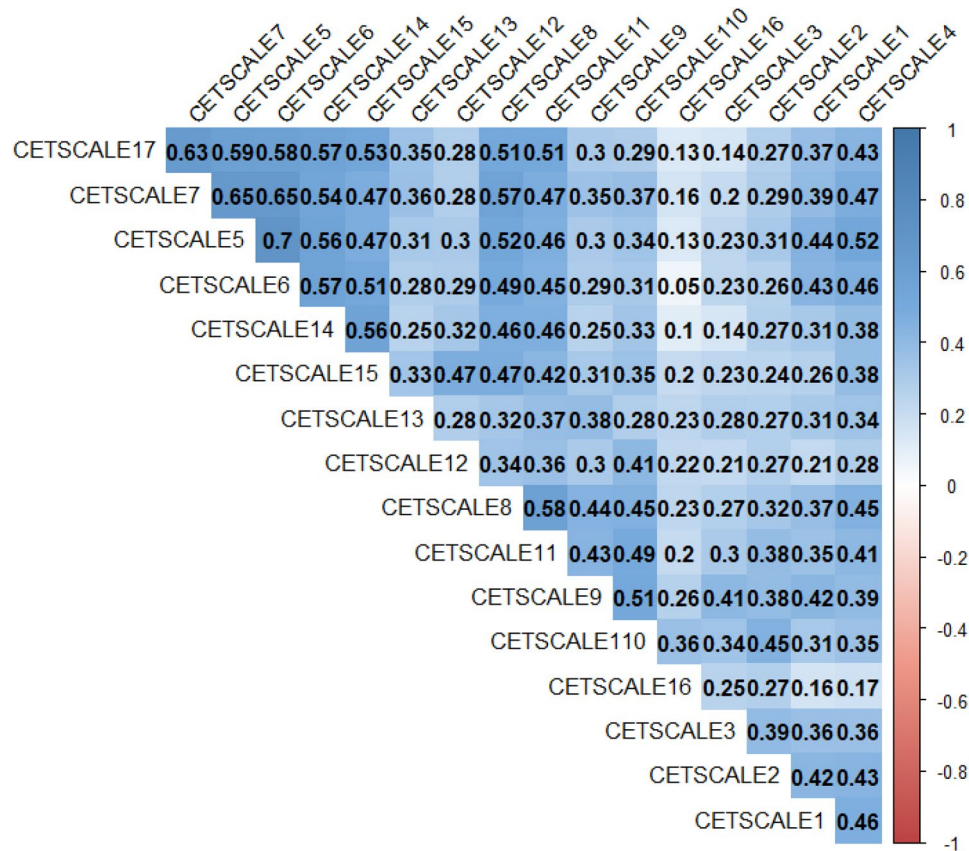


Figure 2. Product-moment correlations among the CETSCALE items (all correlations were significant at the traditional 0.05 level).

Table 2. Reliability analysis.

	Cronbach's alpha	Alpha if the item dropped
Domestic products preference	0.71*	
CETSCALE1		0.66
CETSCALE2		0.64
CETSCALE3		0.65
CETSCALE9		0.64
CETSCALE16		0.72
Animosity toward foreign products	0.90**	
CETSCALE5		0.87
CETSCALE6		0.87
CETSCALE7		0.87
CETSCALE8		0.89
CETSCALE14		0.88
CETSCALE15		0.89
CETSCALE17		0.88

*Feldt 95% CI (0.68, 0.74), Duhachek 95% CI (0.68, 0.75).

**Feldt 95% CI (0.88, 0.91), Duhachek 95% CI (0.88, 0.91).

Exploratory factor analysis (EFA)

To test the dimensionality of the CETSCALE, an EFA calculated with the oblique rotation method was conducted using the *psych* package (Revelle, 2017). The Kaiser-Meyer-Olkin (KMO) test confirmed the sampling adequacy with an overall MSA = 0.91. Bartlett's test of sphericity was also significant ($\chi^2 = 3486.51$, $df = 66$, $p\text{-value} < 0.0001$). The factor loadings varied between 0.42 and 0.84 (Table 3). The EFA had a good model fit (Tucker-Lewis Index = 0.93, RMSEA = 0.07, BIC = -89.56). The scree plot (Figure 3) indicated a two-factor model, which was confirmed using parallel analysis. The EFA results show that the two factors justify 69% of the variance.

Confirmatory factor analysis (CFA)

Next, to validate the detected two-factor structure of the CETSCALE, a CFA was performed using the *lavaan* (Rosseel, 2012) and the *lavaanPlot* (Lishinski, 2020) packages. The CFA had a good model fit (TLI = 0.93, CFI = 0.94, RMSEA = 0.063). The CFA model is plotted in Figure 4. From the graph, it can be seen that all paths are significant at the traditional 0.05 level. Since previous research suggests using scales with a minimal number of components to avoid disengagement and fatigue (Steyn, 2017), we tested the convergent and discriminant validity of the CETSCALE using the Fornell and Larcker (1981) approach.

The average variance extracted (AVE) for factor one and factor two was 0.548 and 0.609 respectively. Since the AVE values exceed the advised threshold of 0.5 (Hair et al., 2016), this study finds that the CETSCALE has an acceptable convergent validity. As the AVE values were also higher than the maximum shared squared variance (MSV) and the average shared squared variance (ASV), the present study also finds that the MAWWWS scale has an acceptable discriminant validity.

Table 3. Factor loadings.

	EFA Loadings
Domestic products preference	
CETSCALE1	0.60
CETSCALE2	0.55
CETSCALE3	0.62
CETSCALE9	0.62
CETSCALE16	0.84
Animosity toward foreign products	
CETSCALE5	0.65
CETSCALE6	0.59
CETSCALE7	0.64
CETSCALE8	0.63
CETSCALE14	0.54
CETSCALE15	0.42
CETSCALE17	0.49

Note: EFA = exploratory factor analysis.

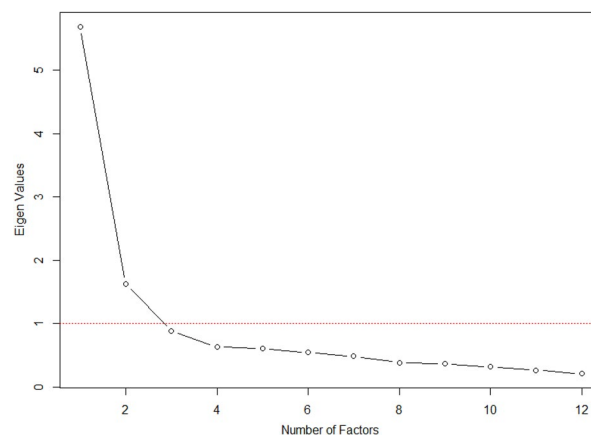


Figure 3. CETSCALE scree plot of the EFA.

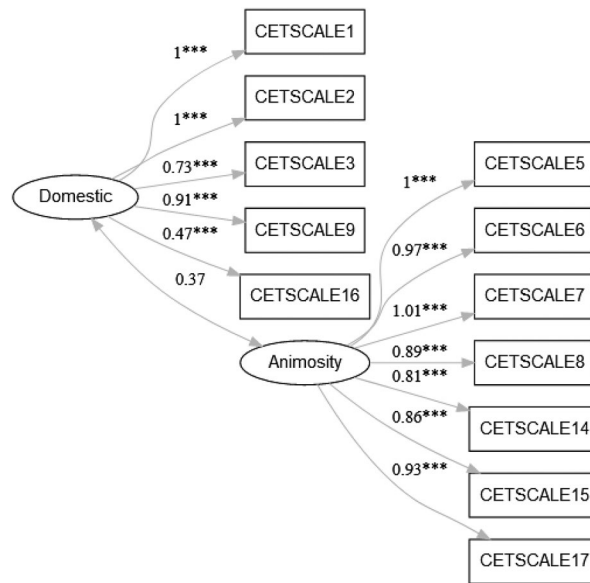


Figure 4. Results of the CETSCALE CFA.

Measurement invariance

Measurement invariance indicates a research instrument's capacity to measure attributes similarly across subgroups or across multiple points in time (Golembiewski et al., 1976; Riordan & Vandenberg, 1994). Wang et al. (2018, p. 166) argue that the lack of measurement invariance casts strong doubt on the 'conclusions regarding the latent variables of interest.' Establishing measurement invariance represents a crucial aspect of construct validity since it can directly affect the inferences drawn from the research instrument (Sulak-Güzey et al., 2023).

After Kwiatkowska et al. (2022), measurement invariance was examined at three levels: configural, metric, and scalar. In the first step, configural invariance was estimated across gender, where variable intercepts, factor loadings, and error variances were allowed to vary with no restrictions placed on these parameters. Configural invariance implies the non-existence of construct bias (Van de Vijver & Tanzer, 2004). In the second step, metric invariance was projected. In this step, gender-neutral factor loadings were established, whereas intercepts may differ between groups. Metric invariance implies that covariances and unstandardized regression coefficients across groups can be directly compared (Steenkamp & Baumgartner, 1998). Finally, in the scalar (strong) invariance same items intercept values are constrained to be the same across gender groups. Establishing scalar invariance implies that meaningful comparisons across groups are possible (Marsh et al., 2010).

As shown in Table 4, configural, metric and scalar invariance across groups was supported. Difference configural-metric P-value $\chi^2 = 0.887$, difference metric-scalar P-value $\chi^2 = 0.246$. However, since intercepts for items CETSCALE1 and CETSCALE15 lack invariance, the intercepts of these two items were permitted to differ between the two groups, and the partial metric invariance was tenable. Finally, difference scalar-strict P-value $\chi^2 = 0.193$.

Network psychometrics analysis

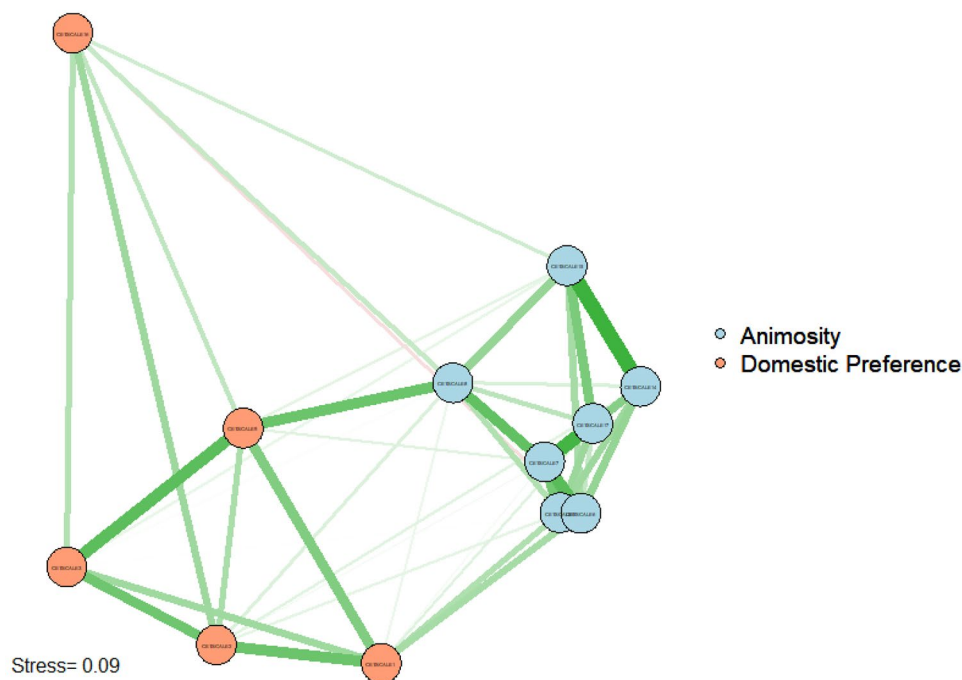
To test the robustness of the results, a 'network psychometrics' approach (Epskamp et al., 2016; Fried et al., 2023) has been used. This approach has recently been applied extensively to examine numerous psychological phenomena in areas as diverse as attitudes (Dalege et al., 2016), personality (Costantini et al., 2019), psychopathology (Borsboom, 2017; Heeren et al., 2018; Summers et al., 2020), psychiatry (Isvoranu et al., 2016, 2017), scales' validation (Franić et al., 2013; Kabadayi & Mercan, 2023; Schlegel et al., 2013), invariance assessment (Finch et al., 2023) and health psychology (Kossakowski et al., 2016).

Table 4. Nested model comparison fit indices for the CETSCALE invariance tests.

Model	SBX ²	df	CFI	TLI	RMSEA	Δ SBX ²	Δ SRMR
M1							
Configural	272.92	106	0.984	0.980	0.046		
metric	200.99	116	0.986	0.984	0.041	10	0.001
M2							
Metric	200.99	116	0.986	0.984	0.041		
Scalar	224.74	126	0.984	0.983	0.043	10	0.003
M2 (modified)							
Metric	124.13	116	0.986	0.984	0.041		
Scalar	129.58	124	0.986	0.985	0.040	8	<0.001
M3							
Scalar	210.51	124	0.986	0.985	0.040		
Strict	221.44	136	0.985	0.986	0.039	12	0.003

Note: SBX² = Satorra-Bentler χ^2 , df=degrees of freedom; CFI=comparative fit index. TLI=Tucker-Lewis index, RMSEA=root mean square error of approximation, Δ SBX²= change in Satorra-Bentler χ^2 , Δ SRMR=change in root mean square error of approximation.

Saudi Respondents, n=703

**Figure 5.** CETSCALE network (nodes represent items and edges represent connections between items).

In the present study, the network psychometrics analysis was conducted in the R (version 4.2) statistical software environment (R Core Team, 2022). Following Mancini et al. (2019), a least absolute shrinkage and selection operator (LASSO) regularization (Friedman et al., 2008) partial correlation network was estimated using a Spearman correlation matrix. A gamma (γ) hyperparameter of 0.5 was selected for the graphical LASSO to ensure the network specificity (Foygel & Drton, 2010). The Fruchterman and Reingold (1991) algorithm was used to draw the MAWWWS network. The *qgraph* package (Epskamp et al., 2012, 2017) was used to estimate the network. Figure 5 depicts the resulting network. The network shows that, apart from a couple of items, all items appear to have quite strong connections with each other as indicated by the thickness of lines connecting the nodes.

Following Dalege et al. (2017), the network's centrality measures were calculated by focusing on three metrics, namely node degree (strength in weighted networks), closeness, and betweenness. The centrality of nodes can be used to investigate the structural significance of various nodes. Centrality measures can 'provide insight into the relative importance of a node in the context of other nodes' (Hevey, 2018, p. 311). Strength centrality is the sum of the absolute edge values connected to a specific

node, whereas closeness centrality gauges how likely it is that information emanating from a node can 'travel' directly or indirectly through the whole network. Finally, betweenness centrality measures how a given node can interfere with the flow of data over the network.

Figure 6 depicts the CETSCALE network centrality measures. The graph shows that item six has the highest strength score, whereas item eight has the highest closeness and betweenness score. Thus, it appears that item eight acts as a bridge connecting the network's communities of nodes.

Like any statistical model, estimated psychological networks are subject to sampling error. This implies that the estimated models are subject to sampling variation. Thus, differences in edge weights may occur merely due to chance and edges may falsely be included while not being present in the true model. Thus, it has been argued that 'psychological network analyses should always include both model selection methods and checks for stability and accuracy' (Burger et al., 2023, p. 2).

To test the firmness of the centrality indices, the bootnet package (Epskamp et al., 2017) was used. The case-dropping bootstrap was used to create 1000 samples to estimate centrality measures stability. Figure 7 shows that although the centrality measures are stable, there is a drop in the correlation between the subsample estimate and the estimate from the original entire sample as the percentage of the sample included in the estimates decreases. The graph also shows that the strength centrality index tends to be the most accurately estimated centrality index for the CETSCALE network. This is in line with the theoretical work of Santos et al. (2018), which demonstrates that betweenness and closeness only reach the threshold for reliable estimation in large samples.

Since numerous papers have formally determined that both latent variable models and network models are mathematically equivalent (Van Der Maas et al., 2006), this implies that the number of factors underlying the CETSCALE should mirror the number of communities in the network. To test this, the 'springlass' community detection algorithms were used (Dalege et al., 2017). Golino and Epskamp (2016) demonstrated that the community detection algorithms can outperform the factor analysis in detecting highly correlated dimensions. Costantini et al. (2015, p. 14) have also argued that 'a network perspective may foster important insights in the field that are unlikely to come by relying exclusively on a latent variable perspective.' A robustness check was conducted through the use of a network psychometrics approach. This method allowed us to verify the two-dimensional structure of CETSCALE. Figure 8 shows that the springlass algorithm detects two communities representing the two dimensions of the CETSCALE instrument, namely employment skepticism and traditional role preferences.

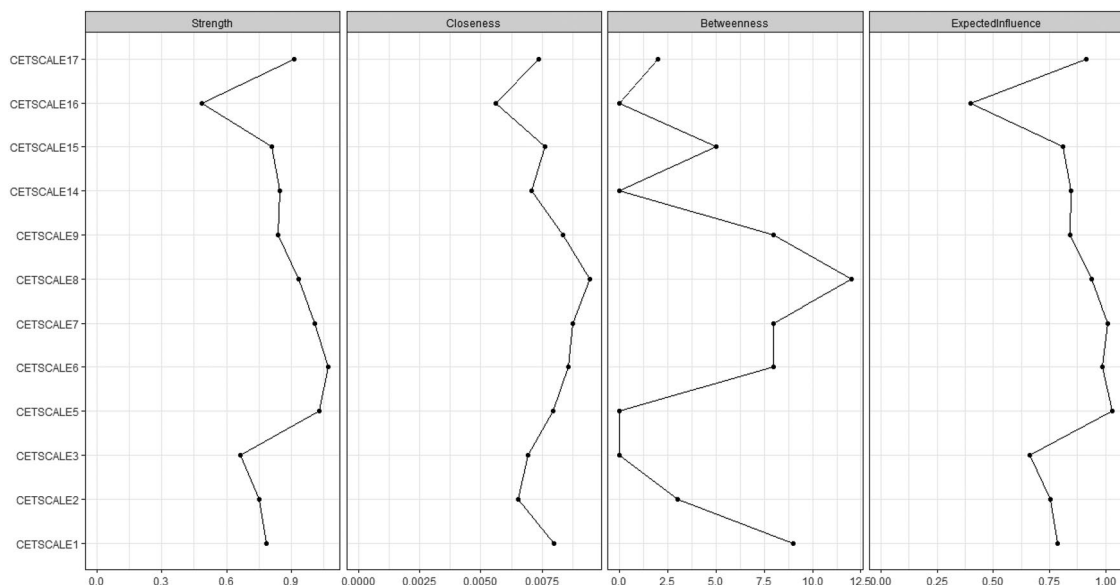


Figure 6. CETSCALE network centrality indices (weighted network).

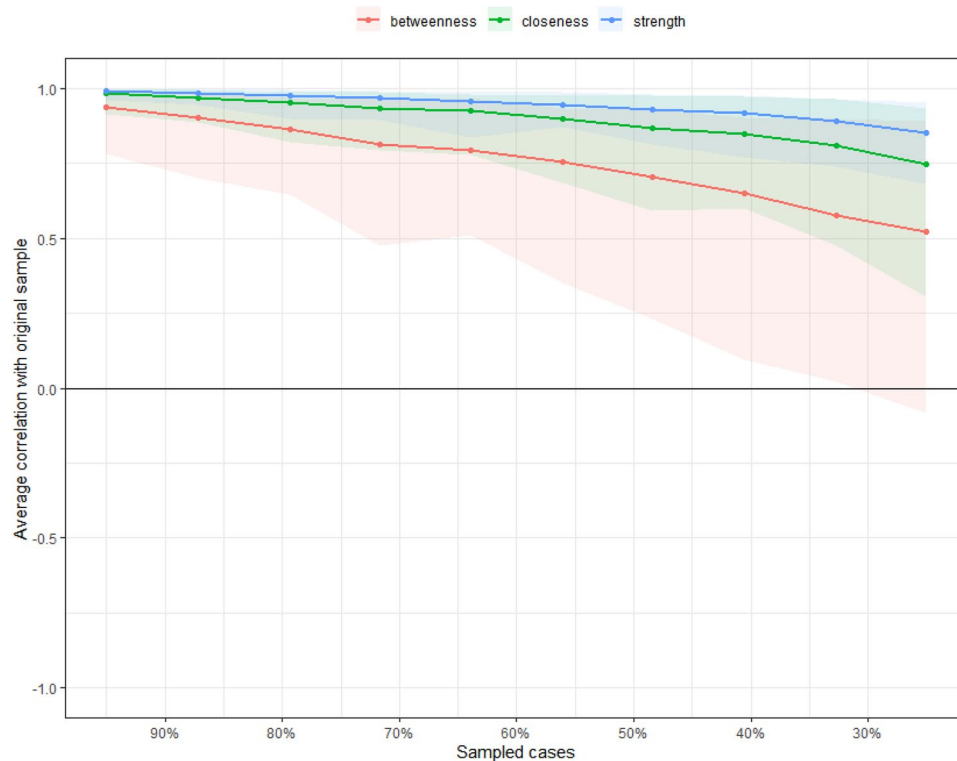


Figure 7. Stability of centrality indices of the CETSCALE network.

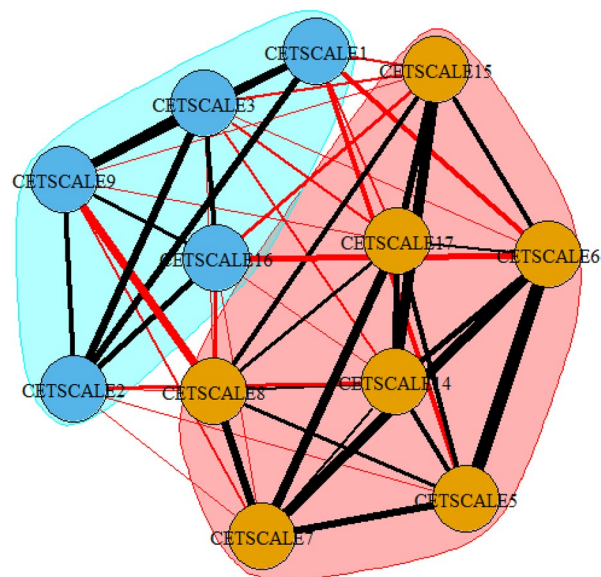


Figure 8. Community detection in the CETSCALE network using the spinglass algorithm.

Discussion and implications

This research responds to the calls of those researchers who question the validity and reliability of the CETSCALE in the context of developing countries (such as Sepehr & Kaffashpoor, 2012). More specifically, to test the psychometric properties of the CETSCALE in KSA, an Arabic version of the scale was distributed among local consumers. The focus was on using EFA and CFA models in investigating measurement invariance. While scholars have previously adopted this strategy to measure models considering only covariances, it has been extended to include both covariance and mean structures in more recent

studies (Schmitt & Kuljanin, 2008). The present study is the first to perform measurement invariance of the Arabic version of the CETSCALE.

The results of the CFA show that the two factors qualify at nearly 70% of the variance which suggest that the factors tested for are effective in accounting for the observed patterns. The finding supports the assumption that the internal consistency of the Arabic version of the CETSCALE is excellent. In addition, the EFA showed that the CETSCALE has an acceptable convergent validity, while the MAWWWWS scale has an acceptable discriminant validity. This indicates that the Arabic version of the CETSCALE supports the underlying structure of the measurement instrument which aligns with previous findings who translated the scale to non-English language (e.g., Altıntaş & Tokol, 2007; Sepehr & Kaffashpoor, 2012). The consistency of the psychometric analysis across different culture and languages supports the CETSCALE's applicability and generalizability. Finally, using network psychometrics analysis, the present study shows a high degree of interrelatedness and interdependence among the measured constructs. This implies that there is a high degree of association between the 17-item were used in this study, which supports the validity of the use of the scale on a large, non-Western, sample size.

In addition, the findings of the present study demonstrated a decomposition of the CETSCALE into two dimensions: specifically, employment skepticism and traditional role preferences. This nuanced finding contributes to a better understanding of the structure of the scale within the Arab-speaking population. The present research therefore not only extends the applicability of the scale to new languages but also offers valuable contributions into the structure of the scale across different cultural contexts. Future research could therefore benefit from focusing on the influence of cultural values on the observed dimensionality differences and their practical implications for cross-cultural research.

Within the Saudi consumer market, organizations face various challenges due to changing consumer behavior, technological advancement, vibrant market trends, and other external forces. This presents a difficulty for key players within the industry who are required to understand and align their products or services with the personal attributes of Arab consumers towards foreign products (see Randeree, 2019). This research endeavors to address this gap by validating the Arabic versions of the CETSCALE among Saudi consumers. The results of this study provide some insights that can support the industry to understand the challenges of the Arab market and enhance their strategies in meeting the preferences of Saudi consumers.

The findings documented here propose several theoretical and practical implications. The theoretical contribution lies in the comprehensive exploration of consumer ethnocentrism and its impact on preferences for domestically sourced goods, particularly in the context of Arab nations. While existing research has extensively investigated consumer ethnocentrism in developed Western countries, the study addresses a significant gap by examining this phenomenon in the dynamic cultural and commercial contexts unique to Arab nations. The research recognizes that consumer ethnocentrism is a multifaceted concept influenced by various factors, including cultural identity, exposure to foreign markets, and attitudes toward international products.

The study builds upon the well-established CETSCALE as a pivotal tool for assessing consumer ethnocentrism. By utilizing this widely recognized scale, the research aligns with the broader body of literature that affirms the unidimensionality and internal consistency of the CETSCALE across diverse cultural contexts (Jiménez-Guerrero et al., 2014). This reinforces the robustness of the CETSCALE as a reliable instrument for measuring consumer attitudes toward domestically and internationally produced goods. The theoretical framework developed in this study thus extends the understanding of how cultural factors influence consumer choices and provides a foundation for future research in the realm of cross-cultural consumer behavior.

From practical point view, this research not only contributes to the understanding of preference of Arab consumer towards domestic products, but also adds valuable insights into the broader field of international marketing of multinational corporations. The findings of this study shed light on specific cultural norms and traditions that are vital for global marketing managers to understand in the Arab context. In a globalized market with intensified competition among products and services, the study sheds light on the intricate dynamics of consumer preferences, linking ethnocentrism measured by CETSCALE to positive impacts on purchase intentions, buying behavior, and attitudes towards domestically sourced products.

Limitations and future research

Despite the major contribution of this research, it suffers from some limitations. First, it relies on a non-probability snowball sampling approach, which might limit the generalizability of the findings. To overcome this problem, a cross-validation approach has been used as recommended by Ross et al. (2023), in which half of the data has been used as the analysis sample and the other half as the holdout sample. The EFA was conducted on the first sample, whereas the CFA was run on the second sample. This approach aims to improve the generalizability of findings. Thus, future investigation might seek to test whether these results hold across other samples.

Additionally, it is crucial to recognize that the investigation depended on self-reported data, which could introduce potential response bias. Notwithstanding these constraints, the meticulous methodology, incorporating cross-validation and a strong sampling strategy, bolsters the dependability of the results obtained and establishes a basis for future studies to verify and broaden these findings across varied populations.

Consumer ethnocentrism, unless demonstrated otherwise, is vibrant and subject to change over time. The literature highlighted several other factors likely to influence consumer's ethnocentric inclinations. These factors may include organic consumption (Cavite et al., 2022) sustainability and ethical concerns (Kamble et al., 2020), or political issues (Ali, 2021). Future studies could offer deeper insights into the extent to which consumer ethnocentrism may change and thereby impact product preferences.

Conclusions

The purpose of this study was to evaluate the psychometric properties of the Arabic version of the CETSCALE. Overall, the results documented here confirmed the two-dimensional structure of the scale. CFA results also revealed that the scale is reliable and has strong convergent and discriminant validity. Since it has been argued that 'theories cannot ignore the network effects caused by interconnectedness among variables' (Hevey, 2018, p. 323), a network psychometrics approach was used to test the robustness of the findings. The nodes' centrality was used to examine the structural significance of the scale's different items, and community detection was also used to inspect the global structure of the network.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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