

Psychometric Properties of the Arabic Meaning in Life Questionnaire (Ar-MLQ) among Prison Inmates in the Saudi Arabian Context

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Abstract

Objectives: This study aims to validate the translated Arabic version of the Meaning in Life Questionnaire (MLQ) developed by Steger et al. (2006) for use with prison inmates.

Methods: The participants were 400 Saudi and non-Saudi prison inmates from the Makkah region of Saudi Arabia, 250 (62.5%) males and 150 (37.5%) females, aged 18 years and older. The researchers translated the original (English) version of the MLQ (Steger et al., 2006) into Arabic following forward to backward translation procedures, and the participants then completed the Arabic MLQ (Ar-MLQ). Further, the researchers examined the Ar-MLQ's psychometric properties using reliability and factor analyses.

Results: Our findings indicated that the hypothesized two-factor model of the MLQ fits the data well for the study sample. In the exploratory factor analysis (EFA), the two-factor solution was supported, and adequate reliability indexes were achieved. For the confirmatory factor analysis (CFA), the two-factor model (the MLQ-P and MLQ-S subscales) presents better goodness-of-fit indexes than the one-factor model.

Conclusions: The findings suggest the Ar-MLQ's applicability for further research on Meaning in Life in the Saudi Arabian context within similar groups.

Keywords: Meaning in Life Questionnaire, exploratory factor analysis, confirmatory factor analysis, prison inmates, Saudi Arabia.

الخصائص السيكومترية للنسخة العربية لمقياس المعنى في الحياة لدى نزلاء السجون في البيئة السعودية

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ملخص

الأهداف: هدفت هذه الدراسة إلى تقنين النسخة العربية من مقياس المعنى في الحياة الذي أعده ستيجر وآخرون (Steger et al., 2006) لاستخدامه مع نزلاء السجون.

المنهجية: تكونت العينة من 400 من السجناء السعوديين وغير السعوديين بمنطقة مكة المكرمة في المملكة العربية السعودية، كان من بينهم 250 (62.5٪) نزيلًا من الذكور و150 (37.5٪) نزيلًا من الإناث من عمر 18 عامًا فما فوق. تُرجمت النسخة الأصلية (الإنجليزية) لمقياس المعنى في الحياة (Steger et al., 2006) إلى اللغة العربية باتباع إجراءات الترجمة الفورية والعكسية وأجاب المشاركون عن النسخة العربية. وقد فحصت الخصائص السيكومترية للمقياس في نسخته العربية باستخدام تحليل الموثوقية (الثبات) والتحليل العاملي.

النتائج: أشارت النتائج إلى أن النموذج المكون من العاملين الفرضيين الذي بنيت عليهم النسخة الأصلية يناسب التطبيق على عينة الدراسة الحالية. في التحليل العاملي الاستكشافي، دعمت نتائج مؤشرات الموثوقية النموذج ثنائي العوامل. أما بالنسبة للتحليل العاملي التوكيدي، فقد أشارت النتائج إلى أن النموذج ثنائي العوامل يقدم مؤشرات مطابقة أفضل مقارنةً بنموذج العامل الواحد. الخاتمة: تشير نتائج الدراسة إلى قابلية تطبيق النسخة العربية في المزيد من دراسات البحث حول المعنى في الحياة بين مجموعات مماثلة في السياق الثقافي السعودي.

الكلمات الدالة: مقياس المعنى في الحياة، التحليل العاملي الاستكشافي، التحليل العاملي التوكيدي، نزلاء السجون، المملكة العربية السعودية

INTRODUCTION

Numerous psychological constructs have been developed in positive psychology that contribute to a better understanding of human experience and behavior. One such important construct is that of the meaning in life (MIL), which can be defined as the degree to which people understand and sense importance in their lives, as well as the degree to which they believe they have an overall goal or purpose in life (Steger, 2009). MIL plays a crucial role in human mental functioning, according to decades of studies. For example, Frankl (1963), in his book *Man's Search for Meaning*, discussed the concept of MIL and emphasized the critical link between MIL and mental function, claiming that MIL is a primary motivating force in a person's life that inspires them to look for new opportunities and challenges (Steger et al., 2008). Similarly, Steger (2012) emphasized that the presence of MIL can help individuals to properly deal with their changing living conditions. Stressful life events, for instance, are often accompanied by various losses that conflict with an individual's desire to recognize the world as meaningful. Furthermore, MIL has been linked to many positive psychological constructs (e.g., DeWitz et al., 2009; Ho et al., 2010; Mascaro & Rosen, 2005; Schlegel et al., 2011), indicating its importance as a psychological component and its contribution to resilience against trauma and stressful life events (e.g., people in prison settings; see Vanhooren et al., 2016). Other researchers have argued that seeking MIL is a sign of reluctance to let go of the past (Nolen-Hoeksema et al., 1997).

All this empirical evidence demonstrates MIL's importance in an individual's life as well as the need for accurate measures to examine its structure among various groups of individuals from different cultures and life conditions. To enhance the scientific understanding of MIL in the Saudi Arabian context, well-validated measures are necessary. Therefore, the current study focuses on the validation and cultural adaptation of one such measure.

Conceptualization and Measurement of MIL

To measure the MIL construct, researchers developed self-reported inventories over the years. For example, the Purpose-in-life Test (PIL), which Crumbaugh and Mohalick (1964) developed was an early attempt to measure MIL. The PIL scale comprises 20 items that the authors chose based on Frankl's (1963) theory of meaning. In Crumbaugh and Mohalick's scale, the aim was to measure MIL through one's goals in life, assuming that a person who has goals must have a meaning for these goals and, hence, an MIL. Later, Crumbaugh (1977) developed the scale Seeking of Noetic Goal (SONG) to measure MIL through the power of motivation. In three separate studies, Steger et al. (2006) developed the 10-item Meaning in Life Questionnaire (MLQ) using two independent samples that included racially diverse (e.g., Asian, African American, and Hispanic) participants recruited from universities and colleges.

Using EFA and CFA analyses, Steger et al. reduced the number of items in the scale from 83 items to 44 item and finally to 10 items to identify two relatively independent factors: (a) presence, or MLQ-P, which can be described as "the sense made of, and significance felt regarding, the nature of one's being and existence" (Steger et al., 2006, p. 81), and (b) search, or MLQ-S, which can be defined as the "strength, intensity and activity of people's desire and efforts to establish and/or augment their understanding of the meaning, significance and purpose of their lives" (Steger et al., 2008, p. 200). In study of Steger et al., the Cronbach's alphas ranged from .81 to .86 for MLQ-P and from .84 to .92 for MLQ-S. The one-month test-retest reliability coefficients were .70 for MLQ-P and .73 for MLQ-S. Convergent and discriminant validity of the two subscales of MLQ were also supported through positive and negative correlations with psychological measures, and the two components were conceptualized as independent from each other and can therefore be assessed separately. Further, the MLQ-P was shown to have better discriminant validity than other more commonly used meaning measures.

Generally speaking, the MLQ offered several improvements over the past and current well-being and MIL measures, such as no overlap in items with related measures, a stable factor structure, better discriminant validity, fewer items, and the ability to measure the presence and search for MIL in the same measure. Additionally, Steger et al. (2006) and later researchers (e.g., Singh et al., 2016; Steger et al., 2008) asserted that the MLQ-P was positively linked to a variety of positive well-being measures, whereas the MLQ-S was negatively correlated with measures of similar constructs. Other researchers (e.g., Liu & Gan, 2010; Steger et al., 2008) have claimed that both factors are positively correlated with

constructs of psychological well-being.

The MLQ Across Cultures and Populations

As aforementioned, the MLQ is one of the most valid and reliable measures to determine the search for and presence of an individual's MIL. To date, the instrument has been validated and used in many individualistic cultures, such as those in Australia (Rose et al., 2017) and Italy (Negri et al., 2020), and collectivistic cultures, such as those in Turkey (Boyras et al., 2013), China (Chan, 2014; Chan, 2017; Liu & Gan, 2010), South Africa (Temane et al., 2014), Brazil (Bruno & Silvia, 2015), India (Singh et al., 2016), Nigeria (Chukwuji et al., 2019), Romania (Balgui, 2020), Spain (Vela et al., 2020), and Iran (Naghiyae et al., 2020). The MLQ's psychometric properties in these studies were very similar. In an example of a study conducted in an individualistic culture, Rose et al. (2017) investigated the MLQ's psychometric properties in Australia. The results indicated a satisfactory level of internal consistency ($\alpha = .82$ for MLQ-P and $\alpha = .84$ for MLQ-S), and the CFA supported the proposed two-factor model. Similarly, Negri et al. (2020) reported the adequacy of the MLQ's two-factor structure in the Italian context.

Regarding collectivistic cultures, Chan (2014) examined the factorial structure of the Chinese version of the MLQ (C-MLQ) in Hong Kong. Chan found a positive and moderate correlation between the MLQ-P and the MLQ-S ($r = .47$), which supports the two-factor structure of the original MLQ. Chan (2017) also found a moderate correlation between the two factors ($r = .40$) in another Chinese version using data from the three different groups included in the study. The MLQ has also been translated into Turkish (MLQ-TR; Boyraz et al., 2013), and its structural invariance was compared across Turkish and American samples. The hypothesized two-factor model was supported for both groups, with high Cronbach's alpha values of .88 for MLQ-P and .90 for MLQ-S. However, the MLQ-TR revealed a negative correlation between the two factors in the Turkish sample, in contrast to research from other collectivist and individualist societies. More recently, Vela et al. (2020) examined the structural validity of the Spanish version of the MLQ. Results of model-fit indices showed that the chi-square statistic test was significant for the hypothesized model. In addition, the lowest factor loading occurred between item 9 and MLQ-P ($-.33$) and the highest factor loading occurred between item 8 and MLQ-S (.82).

The MLQ has also been used in various populations other than prison inmates. The samples from those populations include clinical and non-clinical samples of various ages. The non-clinical samples consist of adolescents, such as students at secondary schools (e.g., Rose et al., 2017), undergraduate students (e.g., Balgiu, 2020; Chan, 2017; Temane et al., 2014; Vela et al., 2017), graduate students (Vela et al., 2020), adults (e.g., Negri et al., 2020; Singh et al., 2016), and older adults (e.g., Bruno & Silvia, 2015; Chukwuji et al., 2019; Naghiyae et al., 2020). In the clinical samples, the populations included caregivers for chronically ill patients (e.g., Chan, 2014; Chan, 2017), home-care residents (Chan, 2017), patients diagnosed with life-threatening diseases (e.g., Naghiyae et al., 2020), and internally displaced persons (Chukwuji et al., 2019). Only one study that employed the MLQ as a research tool included a sample of prison inmates (Vanhooren et al., 2016). See Table 1 for a review of the factor structure and reliability analysis of the MLQ across cultures.

Table 1. Factor structure and reliability of the MLQ across cultures.

Author/Date	Sampling (Culture/Language)	Reliability	Factor Structure
Boyras et al. (2013)	College and adult participants, including Turkish (N = 815) and U.S. (N = 207)	.88 for MLQ-P and .90 for MLQ-S (Turkish sample)	Two-factor model
Chan (2014)	(N = 223) Chinese caregivers for chronic patients in Hong Kong	.84 for MLQ-P and 0.88 for MLQ-S	Two-factor model
Temane et al. (2014)	Multicultural groups of undergraduate students studying in South Africa (N = 326)	.85 for MLQ-P and .84 for MLQ-S	Two-factor model

Author/Date	Sampling (Culture/Language)	Reliability	Factor Structure
Bruno and Silvia's (2015)	Nationwide sample of people aged 18-91 years old (N = 3020) from 22 states in Brazil	.90 for MLQ-P and MLQ-S	Two-factor model
Singh et al. (2016)	Hindi speakers (aged 20-80 years) residing in various rural and urban locations of North India (N = 826)	.81 for MLQ-P and .78 for MLQ-S	Two-factor model
Vela et al. (2017)	Latin college students (N = 330)	.92 for MLQ-P and .90 for MLQ-S	Two-factor model
Rose et al. (2017)	Secondary school Australian adolescents aged 12-18 years (N = 135)	.82 for MLQ-P and .84 for MLQ-S	Two-factor model
Chan (2017)	Undergraduate Chinese students (N = 179), family caregivers (N = 223), and older adults' residents of residential care homes (N = 78)	.85 in the student sample, .72 in the older adult sample, and .84 in the caregiver sample for MLQ-P, and .75 in the student sample, .92 in the older adult sample, and .88 in the caregiver sample for MLQ-S	Two-factor model
Chukwuoji et al. (2019)	Internally displaced persons aged 12-96 years (N = 809)	.82 for MLQ-P and .86 for MLQ-S	Two-factor model
Daradkek (2019)	Jordanian married couples (N = 918)	.69 for MLQ-P and .86 for MLQ-S	-
Negri et al. (2020)	Italian adults aged 20 to 60 years (N = 464)	.84 for MLQ-P and .90 for MLQ-S	Two-factor model
Balgiu (2020)	Undergraduate Romanian students (N = 320)	.79 for MLQ-P and .85 for MLQ-S	Two-factor model
Naghiyae et al. (2020)	Iranian patients (aged 20-80 years) diagnosed with life-threatening diseases (cancer and multiple sclerosis) and referred to hospitals (N = 301)	.84 for MLQ-P and 0.88 for MLQ-S	Two-factor model
Vela et al. (2020)	Spanish undergraduates and graduates (N=202)	.92 for MLQ-P and .90 for MLQ-S	Two-factor model

Research Problem of the Current Study

The construct of MIL and, more specifically, the MLQ's factor structure have received considerable attention and has been as the subject of extensive examination in foreign studies, including studies in which participants were prison inmates, using various quantitative (e.g., Vanhooren et al., 2016), qualitative (e.g., Maruna, 2001; Maruna et al., 2006), and mixed research methods (e.g., Vanhooren et al., 2015). However, in the Arabic psychological literature, research on this study's sample has been scarce. To our knowledge, due to the novelty of the concept of MIL in the Arabic literature, only one study has been conducted in this manner (Al-Qahtani, 2019). Al-Qahtani discussed the MIL and its relationship with the religiosity of prison inmates in Riyadh, Saudi Arabia. Furthermore, the MLQ's factorial structure has not been examined in the Arabic literature. Daradkek (2019) used an Arabic version of the MLQ to examine the association among MIL,

happiness, and satisfaction with family life in a sample of 918 married couples in Jordan. The author only assessed the scale's content validity and its internal consistency using the corrected item-total correlation, which ranged from .33 to .54 for MLQ-P and .57 to .73 for MLQ-S, with a stability coefficient of .65 for MLQ-P and .81 for MLQ-S as well as a Cronbach's alpha of .69 for MLQ-P and .86 for MLQ-S. These results demonstrate the need for local studies to examine the construct of MIL in Arab countries, including the Saudi Arabian context. For this reason, the current study is focused on answering the following question: What are the psychometric properties and the indicators of the factorial structure of the Arabic Meaning in Life Questionnaire (Ar-MLQ)?

Considering the foregoing, we used the original MLQ (Steger et al., 2006) to evaluate its psychometric properties in the Saudi Arabian context. More specifically, we applied the scale to a prison inmate sample in the Makkah region of Saudi Arabia.

Significance of the Study

Because the construct of MIL has not received sufficient attention from psychology researchers in the Arabic literature, especially among the prison inmate population, the present study's unique contribution stems from its focus on examining the construct of MIL in a sample of prison inmates in the Makkah region of Saudi Arabia. From a theoretical point of view, valid and reliable measures play a crucial role in psychological research, and we attempted to enrich the research in the positive-psychology field with validation of one of the most valid and reliable measures of MIL in the Arab environment in general and in Saudi Arabia in particular. From a practical point of view, this validated scale can be used in criminal psychology to assess the process of prison inmates' therapy and search for MIL as a vital component of their well-being and preparation for life after prison.

METHODOLOGY AND METHODS

Study Design, Recruitment, and Sampling

We employed a cross-sectional design to collect the data. We collected data from June 2021 through March 2022 at two prisons in the Makkah region, Jeddah's prison, and the women's prison in Makkah.

Participants

The data collection consisted of two phases: (a) pilot sampling, in which we collected data from a pilot sample of 50 inmates (28 male and 22 female) to evaluate the Ar-MLQ's content validity, and (b) actual data collection, in which we randomly selected 400 inmates, 250 male inmates from Jeddah's prison and 150 female inmates from Jeddah's and Makkah's prisons, after completing the evaluation process. According to Harrington (2008), the appropriate sample size for a CFA is over 200. Therefore, in the present study, the sample size of 400 was sufficiently large to perform the analysis.

Translation Processes of the MLQ

For the purpose of the study, we translated the original MLQ into Arabic for use in this study, with permission from the MLQ copyright holder, Michael Steger, professor at Colorado State University, using the standard forward-backward translation procedure (Kristjansson et al., 2003). We then back-translated the translated version into English, and a committee of experts (one in mental health, one in positive psychology, and two in psychometrics) reviewed both versions. After careful evaluation, the committee members required no changes for the translated items. Additionally, we conducted a pilot phase to determine the Ar-MLQ's internal consistency. We asked the participants if the items were clear to them and easy to understand. The results of the pilot phase showed acceptable values for the Ar-MLQ Cronbach's alpha ($\alpha = 0.87$ for the Ar-MLQ, $\alpha = 0.65$ for MLQ-P, $\alpha = 0.87$ for MLQ-S) and was suitable for application with the target population.

Procedure

As previously mentioned, we collected the data with a larger sample using the Ar-MLQ after its pilot psychometric evaluation. The scale, in its original version, consists of 10 items distributed over two dimensions or subscales: (a) MLQ-P (items 1, 4, 5, 6, and 9) and (b) MLQ-S (items 2, 3, 7, 8, and 10). The first dimension reveals the extent to which respondents find meaning in their lives. The second dimension reveals the extent to which respondents search for meaning

in their lives. Each subscale comprises five items on a 7-point scale (1 = *absolutely untrue*, 7 = *absolutely true*). Only item 9 (“My life has no clear purpose”) is reverse-scored. For the purpose of the study and considering the level of education for the sample, we then modified the Ar-MLQ to a 6-point Likert scale deleting the *neutral* response. The replacement or deletion of the midpoint (*neutral*) response was recommended by Ismail (2019) in the Arabic cultural context and with population of moderate to low-level education. The scale’s total score ranges from 10 to 60, in which higher scores indicate a high level of MIL. We calculated subscores by summing the responses to items on each subscale. We asked the participants to respond to the Ar-MLQ’s items as well as questions regarding demographic variables, including sex, nationality, age, sentence period, monthly income, and education.

Data Analysis

We determined the descriptive statistics of the sample, internal consistency of the scale (based on the Cronbach’s alpha value), and the EFA to examine the scale’s initial factor structure using IBM SPSS version 25. We performed a principal axis factoring (PAF) with 50% of the data to conduct the EFA following the varimax method of extraction as one of the common algorithms for orthogonal rotation, assuming that factors were not correlated. Values in the correlation matrix of EFA should exceed $\pm .30$; otherwise, the item may be unsuitable for the scale. We used the Kaiser–Meyer–Olkin measure to sample adequacy, in which a value of $\geq .70$ is acceptable (Shrestha, 2021). For the CFA, we used AMOS software version 23 to conduct the analysis to evaluate the scale’s CFA models with the other 50% of the data. We used several indices to evaluate the model’s goodness of fit (Harrington, 2008): (a) the chi-square test of significance (χ^2), (b) the root-mean-square error of approximation (RMSEA), (c) the Tucker-Lewis Index (TLI), (d) the normed fit index (NFI), (e) the comparative fit index (CFI), and (f) the standardized root mean square residual (SRMR).

RESULTS

Sample Characteristics and Differences in Demographics

As Table 2 shows, 62.5% of the participants were male and 37.5% were female. Most of the participants were Saudis (91%), and more than half (56.5%) were 22–39 years old. In addition, 43.3% of the participants had a prison sentence of 1 to 5 years, 42.3% had monthly income below average, and more than 65.8% had an education level of high school or less. Regarding differences based on the demographic variables, scores on the Ar-MLQ did not differ across sex, nationality, age, sentence period, or monthly income. The only significant difference occurred in the level of education, in favor of a graduate degree ($M = 4.60$, $SD = 1.66$).

Table 2. The sample’s demographic characteristics (N = 400).

Variable		N	%
Sex	Male	250	62.5
	Female	150	37.5
Nationality	Saudi	364	91
	Non-Saudi	36	9
Age	18-21	72	18
	22-39	226	56.5
	40-59	95	23.8
	≥ 60	7	1.8
Sentence length	< One year	118	29.5
	1-5 years	173	43.3
	6-10 years	60	15
	>10 years	49	12.3
Monthly income	<3000 SAR	169	42.3
	3000-6000 SAR	99	24.8

Variable		N	%
Education	6000-8000 SAR	61	15.3
	>8000 SAR	71	17.8
	<i>Illiterate</i>	22	5.5
	<i>High school or less</i>	263	65.8
	<i>Diploma or Technical Training</i>	40	10
	<i>Bachelor's Degree</i>	57	14.3
	<i>Graduate Degree</i>	18	4.5

Reliability Analysis

Table 3 presents the item-scale analysis of the Ar-MLQ is presented. As the table shows, the Cronbach's alphas for the two factors were acceptable (> 0.7 ; 0.81 for MLQ-P and 0.90 for MLQ-S) and overall reliability was 0.91. The corrected item-scale correlation ranged from .20 to .83, indicating an acceptable reliability (Shrestha, 2021). Cronbach's alpha would be greater than the overall Cronbach's alpha for MLQ-P if MLQ-P5 (item 9) was deleted, and for MLQ-S if MLQ-S5 (item 10) was deleted. This result indicates that removing those items would improve the subscales' internal consistency. The table also shows that the standard deviations are approximately similar, suggesting no outliers among the items. The Ar-MLQ item mean indicates that the degree of agreement varies between 3.75 and 4.55. While Ar-GHQ-11 ("I am seeking a purpose or mission for my life") has the highest degree of agreement ($M = 4.55$), and MLQ-P5 ("My life has no clear purpose") has the lowest degree of agreement ($M = 3.75$). Overall, the MLQ-P's mean score was moderate of ($M = 4.01$, $SD = 1.46$) and slightly higher for the MLQ-S ($M = 4.48$, $SD = 1.37$).

Table 3. Ar-MLQ item's descriptives and reliability statistics.

Items (English/Arabic)	Mean \pm SD	Corrected Item-Total Correlation	Cronbach alpha if the item is eliminated
MLQ-P1 (item1) I understand my life's meaning أفهم معنى حياتي	4.12 \pm 1.72	.70	.75
MLQ-P2 (item 4) My life has a clear sense of purpose لحياتي هدف واضح	4.14 \pm 1.65	.77	.73
MLQ-P3 (item 5) I have a good sense of what makes my life meaningful لدي إحساس جيد بما يجعل حياتي ذات مغزى	4.12 \pm 1.72	.75	.73
MLQ-P4 (item 6) I have discovered a satisfying life purpose اكتشفت هدفا مرضيا في الحياة	4.04 \pm 1.63	.69	.75
MLQ-P5 (item 9) My life has no clear purpose حياتي ليس لها هدف واضح	3.75 \pm 1.70	.20	.89
MLQ-P	4.01 \pm 1.46	$\alpha = .81$	
MLQ-S1 (item 2) I am looking for something that makes my life feel meaningful	4.46 \pm 1.53	.769	.882

أبحث عن شيء يجعلني أشعر بأن حياتي ذات مغزى			
MLQ-S2 (item 3) I am always looking to find my life's purpose أبحث دائما عن هدف لحياتي	4.52±1.59	.818	.872
MLQ-S3 (item 7) I am always searching for something that makes my life feel significant أبحث دائما عن شيء يجعلني أشعر بأن حياتي ذات أهمية	4.54±1.63	.815	.872
MLQ-S4 (item 8) I am seeking a purpose or mission for my life أبحث عن هدف أو مهمة في حياتي	4.55±1.54	.836	.868
MLQ-S5 (item 10) I am searching for meaning in my life أبحث عن معنى في حياتي	4.32±1.74	.593	.922
MLQ-S	4.48±1.37	$\alpha = .90$	
Ar-MLQ	4.29±1.33	$\alpha = .91$	

The Ar-MLQ's Factor Structure

Table 4 shows the factor loadings of EFA using the PAF with varimax rotation solution loading satisfactorily in the expected two factors (MLQ-P and MLQ-S) that jointly accounted for approximately 70% of the variance. The data met the Kaiser-Meyer-Olkin criteria for sampling adequacy, as .92 is close to 1. The Bartlett's test for sphericity was significant ($\chi^2=2812.71$, $df=45$, $p \leq .000$). Overall, these values suggest that the data meet the minimum standards for EFA (Shrestha, 2021).

The CFA Models of the Ar-MLQ

The hypothesized MLQ measurement model consists of two factors with 10 items. In our analysis, we used comparative-fit indices to evaluate the CFA models of the Ar-MLQ, using two solutions: (a) a one-factor solution, and (b) a two-factor solution. As Table 5 shows, the one-factor model demonstrates poor-fit indices, as the RMSEA (.12) was greater than .10, the SRMR (.07) was lower than .08, and the CFI (.94), TLI (.90), and NFI (.89) were lower than .95. Figure 1 displays the standardized factor loadings of the one-factor model. On the other hand, in the two-factor model, the CFI and NFI (.96) were greater than .95, the RMSEA (.09) was lower than .10, and the SRMRs were less than .08. All values of the two-factor model are acceptable and demonstrate good-fit indices. Therefore, we consider the two-factor solution a better model (see Table 5). Figure 2 displays the standardized factor loadings of the two-factor model and the correlation between factors. The factor loading had values ≥ 0.6 except for item MLQ-P5 (referred to as a5 in Figure 2), and the two factors were strongly correlated ($r = .86$).

Table 4. Inter-item correlations, factor loadings, and eigenvalues of the Ar-MLQ (N= 400).

Items	Factor loadings	Eigenvalues (%of Variance)	1	2	3	4	5	MLQ-P	1	2	3	4	5	MLQ-S
MLQ-P1	0.74	-	1											
MLQ-P2	0.81	-	.654**	1										
MLQ-P3	0.77	-	.671**	.772**	1									

Items	Factor loadings	Eigenvalues (%of Variance)	1	2	3	4	5	MLQ-P	1	2	3	4	5	MLQ-S
MLQ-P4	0.75	-	.618**	.707**	.645**	1								
MLQ-P5	0.06	-	-0.088	-0.086	-0.047	-.183**	1							
MLQ-P	-	6.00 (69.03%)	.809**	.859**	.862**	.781**	.198**	1						
MLQ-S1	0.85	-	.668**	.634**	.645**	.618**	-0.071	.705**	1					
MLQ-S2	0.88	-	.606**	.698**	.663**	.626**	-.105*	.702**	.793**	1				
MLQ-S3	0.86	-	.554**	.619**	.619**	.619**	-0.052	.666**	.710**	.751**	1			
MLQ-S4	0.86	-	.569**	.635**	.587**	.577**	-0.033	.660**	.700**	.736**	.796**	1		
MLQ-S5	0.66	-	.381**	.441**	.349**	.348**	0.012	.434**	.466**	.524**	.537**	.610**	1	
MLQ-S	-	1.02 (10.24%)	.647**	.707**	.666**	.649**	-0.057	.860**	.853**	.887**	.887**	.897**	.746**	1

Table 5. Fit indices (overall fit) of the Ar-MLQ (N = 400)

Model	χ^2 (df)	TLI	NFI	CFI	RMSEA	SRMR
One-factor	318.54 (35), p < 001	.90	.89	.94	.12	.08
Two-factor	75.44 (23), p < 001	.94	.96	.96	.09	.07

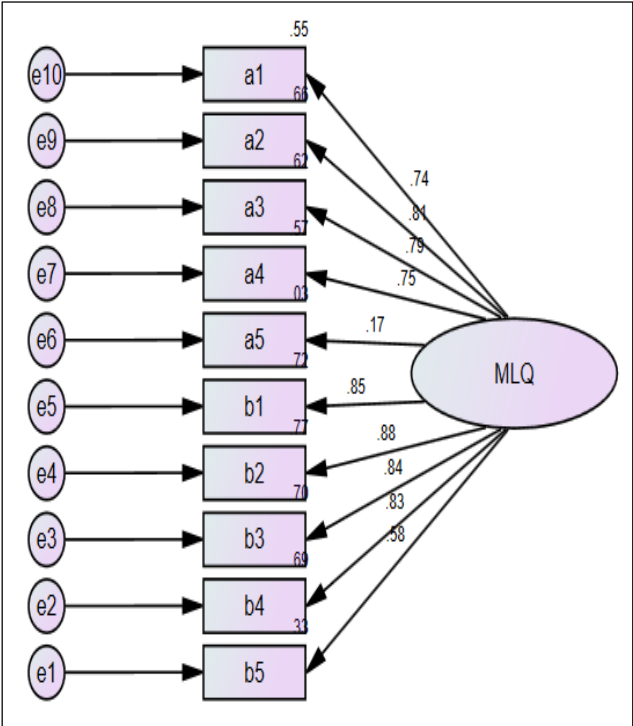


Figure 1. Standardized loadings of the one-factor model of the Ar-MLQ.

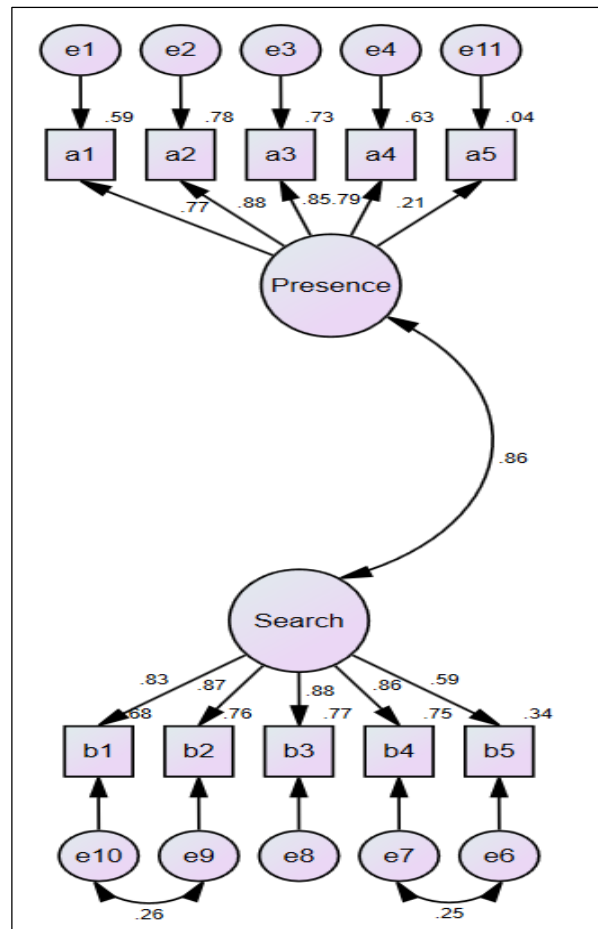


Figure 2. Standardized loadings of the two-factor model of the Ar-MLQ.

DISCUSSION

The aim of this study was to evaluate the Ar-MLQ's psychometric properties among prison inmates, including Saudis and non-Saudis living in the Saudi Arabian context. The Ar-MLQ's overall reliability in the Saudi Arabian context is 0.91 (0.81 for MLQ-P and 0.90 for MLQ-S). All these values are in the acceptable range. Regarding the Ar-MLQ's factor structure, compared to the results from previous validation studies of the MLQ in various cultures (e.g., Boyraz et al., 2013; Naghiyae et al., 2020; Singh et al., 2016; Vela et al., 2020), our results support the two-factor structure of the Ar-MLQ in the Saudi Arabian context. According to Rose et al. (2017) and Negri et al. (2020), the one-factor structure of the MLQ shows an unacceptable model fit. For the reliability of both factors of the Ar-MLQ, the results of our study also support the results of previous cultural studies in which the value of Cronbach's alpha ranges from medium to high ($\alpha = .72$ to $\alpha = .92$). In addition, regarding the standardized loadings of scale items, all items show high values and ranged between 0.59 and 0.88, except for item 9 with a lower value of 0.21. As other researchers have argued, item 9, which is the only item with reverse-coding and -meaning in the scale (e.g., "absolutely untrue" for the highest score), has a low value, often 0.3 less than that of the other items. Rose et al. (2017) and Vela et al. (2020) supported this argument, as their respective values for item 9 were $-.33$ and $.26$. Furthermore, Naghiyae et al. (2020) found that item 9 was nonsignificant, with low values of $.18$, compared to the rest of the items loaded on the same factor. Therefore, this study supports the solution other researchers have suggested in which item 9 is deleted from the scale, as it may confuse respondents. Another suggestion is to replace the item with a positive item to maintain each factor's internal consistency.

CONCLUSIONS

The Ar-MLQ displays adequate reliability and validity for use in the Saudi Arabian context, with the prison inmate population in particular. The scale's factor structure in this study coincides with that found in more representative works with various kinds of populations and cultures. Furthermore, the results of the factor analyses of the Ar-MLQ confirm that it can be used effectively to assess the Saudi adult population's overall MIL.

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