



**The Factorial Structure of the Self-Control and Self-Management
(SMCS) Scale Using Exploratory and Confirmatory Factor Analysis
among Jordanian University Students**

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ABSTRACT

This study used both exploratory and confirmatory factor analysis to examine the factorial structure of the self-control and self-management scale (SCMS). The study sample was made up of 1159 students from public and private universities; they were chosen using a convenient sampling technique. The Mezo (2009) scale consisted of 17 items after it was translated into Arabic. A descriptive analytical methodology was adopted for this study. The study's findings revealed that the (SCMS) scale had acceptable psychometric qualities. Moreover, the factorial structure was validated using exploratory factor analysis, which revealed the presence of three principal factors: self-monitoring, self-evaluating, and self-reinforcing, each accounting for 55% of the total variation. The confirmatory factor analysis was carried out with Amos' statistical program. The following indicators were obtained: Chi-Square, CFI, RMSEA, and SRMR were all used to determine the fit of the confirmatory factor analysis model to the exploratory factor analysis model. In light of these results, the study concluded with a set of recommendations, perhaps the most prominent of which is that researchers and workers in the field of psychological and educational measurement should use the self-control and self-management scale used in this study.

Keywords: Exploratory Factor Analysis, Confirmatory Factor Analysis, Self-control and Self-Management Scale.

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البنية العاملية لمقياس الضبط الذاتي وإدارة الذات باستخدام التحليل العاملية الاستكشافي والتوكيدي لدى طلبة الجامعات الأردنية

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ملخص

هدفت هذه الدراسة إلى معرفة البنية العاملية لمقياس الضبط الذاتي وإدارة الذات باستخدام التحليل العاملية الاستكشافي والتوكيدي، تكونت عينة الدراسة من (1159) طالبا وطالبة من الجامعات الحكومية والخاصة في الأردن تم اختيارهم بالطريقة المتيسرة. ولتحقيق أهداف الدراسة تم استخدام مقياس ميزو (2009) والمكون من (17) فقرة، بعد أن تمت ترجمته للغة العربية. واستخدم المنهج الوصفي التحليلي، أشارت نتائج الدراسة إلى تمتع المقياس بخصائص سيكومترية جيدة، كما تم التحقق من البنية العاملية باستخدام التحليل العاملية الاستكشافي باستخدام طريقة المكونات الرئيسية والتدوير المتعامد، حيث بينت نتائج التحليل وجود ثلاثة عوامل رئيسية هي: مراقبة الذات، وتقييم الذات، وتعزيز الذات فسرت جميعها ما نسبته (55%) من التباين الكلي في الأداء على مقياس ضبط وإدارة الذات، كما تم استخدام التحليل العاملية التوكيدي من خلال برنامج Amos، واستخدمت كل من المؤشرات: مربع كاي، ومؤشر حسن المقارنة CFI ومربع متوسط جذر الخطأ التقريبي RMSEA، ومؤشر جذر متوسط مربعات البواقي المعيارية SRMR، وبينت النتائج تطابق النموذج الذي تم التوصل له من خلال التحليل العاملية التوكيدي مع النموذج الذي تم التوصل له من خلال التحليل العاملية الاستكشافي. وفي ضوء هذه النتائج خلصت الدراسة لمجموعة من التوصيات لعل أبرزها أن يستخدم الباحثين والعاملين في مجال القياس النفسي والتربوي مقياس الضبط الذاتي وإدارة الذات المستخدم في هذه الدراسة.

الكلمات المفتاحية: التحليل العاملية الاستكشافي، التحليل العاملية التوكيدي، البنية العاملية، مقياس ضبط وإدارة الذات.

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Introduction

Rapid, observable advancements and changes in science, cognition, and technology are taking place in the modern world. These quick and abrupt changes have led to a general increase in psychological problems for humans, both in terms of number and quality. Stress and psychological problems have become commonplace in daily life, resulting in maladaptation, depression, anger, and other disorders.

Alsmadi & Bani Abdo (2017) indicated that counseling services have become essential for everyone; as they are a sign of the progress of the societies. As a result of the necessity imposed by these circumstances and developments, western and Arab societies developed an interest in offering psychological and counseling services, with the goal of assisting people in solving their problems through scientific methods (Alsmadi & Bani Abdo, 2017).

Sten & Staden (2018) pointed out that as; it has become increasingly important to widen the knowledge base in this kind of research. Psychologists that specialize in counseling have focused on a number of areas that help people find solutions to their difficulties and feel less suffering. The field of psychological counseling is especially significant because it gives psychological counselors information about the situations they face and assists them in choosing the best course of action for their goals. This, in turn, helps counselors gain insight into their clients' conditions and help them understand themselves.

In this context, Karoly (2010) considered self-control as the capacity of an individual to decide on, execute, and maintain behavior to accomplish a goal on their own—without assistance or support from others. In order to pursue the desired change and lessen their reliance on others, self-control indicates an individual's ability to govern and manage their behaviors, practices, and emotions in a variety of ways. These approaches include selecting standards, self-observation, reward, and self-punishment.

Self-control is understood to be a set of interdependent loops made up of three processes. They are known as the self-reinforcing (SR), self-monitoring (SM), and self-evaluation (SE) loops. When someone engages in self-monitoring, they watch their own thoughts, feelings, and behaviors as well as the goal behavior.

Comparing the goal behavior to the standards he has established for himself on this behavior is also a part of the self-evaluation process. By self-reinforcing or self-punishing, the person inwardly or externally promotes himself or herself in light of the comparison (Pihie & Bagheri, 2013).

Bandura (1999) believes that self-control is a critical cognitive skill that allows people to control their thoughts, emotions, and behaviours to accomplish long-term objectives. However, self-control is not a static trait, and its strength can be influenced by various individual factors, factors such as age, gender, personality, and stress can have a significant impact on self-control, For example, self-control tends to improve with age, with older adults displaying greater levels of impulse control than a younger individual., similarly, certain personality traits, such as conscientiousness, have been linked to higher levels of self-control, conversely, stress can undermine self-control, as it can deplete the cognitive resources required for self-regulation.

The ability to change one's thinking, regulate one's behavior, and arrange one's own internal mechanisms for changing oneself or one's behavior is known as self-management. A phrase that is widely used in business, psychology, economics, medicine, and sports, in addition to everyday life. To produce healthier and more positive results, swap out unhealthy behaviors for healthy ones, and use efficient self-management techniques to complete difficult activities. (Covarrubias & Stone, 2015; Ghali *et al.*, 2018).

Ercoskun (2016) added that self-management may be influenced by a variety of things such as the individual's culture, the amenities that society offers him, the nature of societal conventions and traditions, and the culture of the society in which he lives, executive functioning, which

includes higher-order cognitive functions like planning, decision-making, and self-control, is intimately tied to self-management, including motivation, contextual variables, and personality features, people with strong self-management skills are more likely to succeed in reaching their objectives and preserving their mental and physical health. However, stress, exhaustion, and mental anguish can make it difficult for someone to properly manage their own lives.

According to Bendassolli *et al.* (2016) people must cultivate and maintain strong self-management abilities since they can result in a number of beneficial outcomes, such as enhanced academic and professional performance, better mental and physical health, and higher levels of life satisfaction. Setting specific objectives, prioritizing work, using time wisely, exercising self-control and mindfulness methods, and asking for help when required are all strategies for enhancing self-management abilities.

Factor analysis

Factor analysis is commonly used in social and behavioural sciences, as well as in other fields such as finance and marketing, in factor analysis, where a large number of variables are analysed to identify a smaller number of underlying factors that are responsible for the observed variance in the data (Civelek, 2018; Alnasraween *et al.*, 2023).

While factor analysis can be a powerful tool for identifying underlying dimensions or factors, it is important to carefully consider the appropriateness of the technique for a given dataset and research question (Schreiber, 2021). Factors may be influenced by various sources of error, such as measurement error or response bias, and results may be affected by the choice of extraction method, rotation method, and other analytic decisions, therefore, it is important to approach factor analysis with a critical eye and to interpret results in the context of the broader research question and literature (Barendse, *et al.*, 2015).

Exploratory Factor Analysis (EFA)

According to Badalos (2017), EFA is a statistical methodology that is commonly employed by researchers. It is involved with the development of scales, as well as the examination and verification of scales to determine the validity of their construction.

Furthermore, EFA aims to extract relationships between variables and build theories, and reduce variables to smaller and more controllable numbers. EFA seeks to identify the factors into which variables can be classified, considering these factors as categories of these variables (Gabriel *et al.*, 2017).

Confirmatory Factor Analysis (CFA)

Confirmatory factor analysis (CFA) is a statistical technique used to test a priori hypotheses about the underlying structure of a set of observed variables. CFA is used to evaluate the fit of a hypothesized factor structure to the data. In CFA, a researcher specifies a model that consists of a set of latent factors and a set of observed variables that are believed to measure those factors, the researcher then tests whether the observed data fit the hypothesized model using various fit indices (Brown, 2015; Lloret *et al.*, 2017; Prudon, 2015).

CFA is often used in social sciences, and psychology to evaluate theoretical models of personality characteristics, attitudes, and other variables, by determining whether the actual data fit the proposed factor structure, it may be used to assess the validity and reliability of measures, it may also be used to compare between alternative models, such as determining which one better matches the data a two-factor model versus a three-factor model (Price, 2017, Ralph & Gregory, 2015).

To conduct CFA there must be a major assumption to be fulfilled in the data the "one-dimensionality" is used to describe this supposition. In other words, the construct being measured should be a single, underlying construct, and the observed variables should be indicators of that construct. Violations of this assumption may result in inaccurate parameter estimates, leading to incorrect interpretations of the CFA

results. Therefore, researchers should ensure that the one-dimensionality assumption is met by examining the factor loadings and cross-loadings of the observed variables to confirm that they are consistent with the hypothesized factor structure (Duckworth *et al.*, 2019; Collier, 2020, Booth & Hughes, 2014).

Indicators of Model-Data Fit

In structural equation modeling (SEM), model fitting is necessary. According to Brown & Moore (2012) and Kline (2011), the purpose of modeling is to create a fit between the data gathered from the measurement using a set of indicators and the theoretical model. The researcher can assess the quality of the suggested model with the aid of well-matched indicators, which might be descriptive or statistical. For linear structural models, there are multiple indicators that evaluate how well the data conforms to the model (Lewis, 2017).

The researchers employed a set of statistical goodness indicators that are assessed in the theoretical literature based on a predetermined cut-off point. The metrics employed include the Tucker-Lewis index (TLI), the incremental fit index (IFI), the normed fit index (NFI), the standard root means residual index (SRMR), and the root means square error of approximation (RMSEA). Table 1 presents the indicators together with their respective cut-off points (Civelek, 2018, Cohen, 1988).

Table (1): Goodness of fit indicators

Indicator	Symbol	Cut-Off Score
Chi-square/Df	χ^2 / Df	< 3
Comparative Fit Index	(CFI)	>0.90
Root Mean Square Error of Approximation	(RMSEA)	<0.08
Standardized Root Mean Residual	(SRMR)	<0.08
Tucker Lewis Index	(TLI)	>0.90
The goodness of fit indicator	GFI	>0.90
Adjusted Goodness of fit indicator	AGFI	>0.90

Tomé-Fernández, *et al.* (2020) conducted a study to determine the social skills scale's exploratory and confirmatory factor analysis for recent immigrants. To meet the objectives of the study, two samples ($n = 330$ and $n = 568$) were chosen. First and second-order factor analysis was used to verify the construct validity and validate the scale's hierarchical structure. The structure was examined following validation using exploratory factor analysis, and the model was then modified using structural equations to provide confirmatory factor analysis. With values in every dimension above 0.8, the instrument's internal consistency and dependability were further examined. It is determined that this new tool, which consists of 29 items and 6 dimensions, can be used to diagnose social skills because it has appropriate validity and reliability.

Casanova, *et al.* (2019) studied the development of the psychosocial uncertainty scale (PS-US), the study sample consisted of 1159. The following analyses were carried out by randomly splitting this sample into three subsamples: preliminary confirmatory factor analysis (sample two: $N = 382$), confirmatory factor analysis (sample three: $N = 387$), and exploratory factor analysis (sample one: $N = 827$). Using structural equation modeling, relationships between this scale and the Uncertainty Response Scale were investigated. The findings of the confirmatory and exploratory studies demonstrated strong internal consistency and general positive psychometric properties.

In order to standardize the Mezo (2009) scale in the Saudi Arabian context, Alsmadi & Bani Abdo (2017) translated and applied the scale to 288 Saudi students enrolled in Najran University. The findings showed that the scale has several valid indicators, including construct validity and factor analysis validity.

Kaya (2017) aimed to develop a valid and reliable scale to determine the irrational beliefs of students in mathematics. The study sample consisted of 700 students. The Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) were applied. A structure was obtained consisting of 20 items, which explained 53.86% of the total variance and the four factors. The CFA's results demonstrated that the 20-item structure and the four components associated with the Irrational

Beliefs in Mathematics Scale (IBIMS) have sufficient consistency indices. The scale's overall internal consistency coefficient was determined to be 0.81. It was discovered that the test-retest measurement reliability was 0.75.

To apply the Mezo scale to the Turkish context with regard to gender characteristics and academic accomplishment, Ercoskun (2016) carried out a study. The study sample comprised 1006 students, and the scale was translated into Turkish. The outcomes demonstrated that the confirmatory and exploratory models fit together. Regarding the variations in the arithmetic means based on the gender variable, these variations favored the female population. Additionally, the findings showed a statistically significant positive association between the teacher's academic evaluation and study scale performance.

Bendassolli *et al.* (2016) investigated the factorial structure of the SCMS scale. To determine whether there are differences in the scale performance attributed carrier type. The study's participants included 596 Brazilian creative industry professionals. The findings of the EFA revealed that three factors lay behind the participants performance on the SCMS scale.

Furthermore, a self-control scale was created by Mezo and Short (2012) and divided into three sub-domains: self-monitoring, self-evaluation, and self-enhancement. There were 145 items on the scale. Thirty-two male and female students from the United States made up the study sample. The scale's psychometric qualities make it appropriate for assessing managerial and self-control abilities; its validity and reliability coefficients were 0.87 and 0.92, respectively.

A study was undertaken by Hassouna (2012) in order to develop a self-control skill scale. A sample of 600 students from Jordan's private universities in Yarmouk and Irbid were administered the scale, which had 101 items. The scale exhibited many signs of satisfactory validity, and the reliability coefficient was achieved at 0.93.

Mezo (2009) developed a self-control and self-management scale for adults in another study. A sample of 302 multiethnic people were

administered the sixteen-item assessment. Validity and reliability coefficients both reached 0.85 and 0.89, respectively. The measure should be used in counseling, the study recommended, particularly for students who struggle with anxiety, sadness, or poor weight control.

A scale to assess teenage self-management was created by Buran et al. (2006). 368 male and female students, ages 12 to 21, were included in the sample for which the scale was used. The scale exhibited diverse and sufficient validity indications, as well as appropriate psychometric features, according to the study's results, where the reliability coefficient was 0.90.

Commenting on the previous studies

It is clear from reviewing the previous studies that many efforts have been carried out in this domain some of the previous studies used the same scale used in this study such as the study of Bendassolli *et al.* (2016) Mezo & short (2012), Ercoskun (2016). Furthermore, the goal of Al-Smadi & Bani Abdo (2017) study was to standardize the Mezo (2009) scale for use in Saudi Arabia. This study, which may be regarded as the first to be carried out in the Jordanian environment, sought to determine the factorial structure of the SMCS scale among Jordanian university students.

Statement of the Study Problem

Providing psychological and counselling services assists individuals in resolving problems that arise as a result of life's events and circumstances, and the availability of these services reflects societal progress. Psychological scales are some of the instruments that can be used to help individuals overcome the difficulties and problems they face. The scales for self-management and self-control are numerous such as Mezo (2009). Given the dearth of available measures regarding the Arab world, the researchers recognized the significance of translating and standardizing this scale for the Jordanian university students. This group faces numerous contradictions and difficulties considering the current situation, which are mirrored in most societies and have an impact on behavior as well as traits, ideas, and future directions. Recalling that

youth are the future of every country. Based on that, standardizing the measure of self-control can contribute to enhancing social coexistence and tolerance in the diverse Jordanian society, as Jordan is a country with a multicultural society and social diversities, and standardizing a measure of self-control can contribute in enhancing cultural awareness and mutual respect between individuals of different backgrounds. This can contribute to building an advanced and cohesive society, by strengthening social discipline and the ability to act responsibly and promoting social coexistence, developing these skills among individuals enhances stability and sustainable development in society. Given the foregoing, the following questions can be used to determine the study problem:

Q1: What are the psychometric properties of the SCMS ?

Q2: What are the factorial components of the SCMS scale using EFA?

Q3: What is the factorial structure of the SCMS Scale using CFA?

The Significance of the Study

The significance of this study stems from its attempt to verify the factor structure of the SCMS scale in the Jordanian context. It also provides a dependable and objective instrument that researchers and others can use to conduct research or assess the level of self-control and management among students in various educational institutions. Moreover, the significance of this study can be linked to its focus on a quantifiable trait, self-management and self-control (SCMS), as well as the requirement for a scale to be used in Jordan as well Arab countries.

Procedural and Conceptual Definitions

Self-Control and self-management

A cognitive technique where a person regulates his behavior by self-reinforcing, self-evaluation, and self-monitoring; he then uses this technique in various contexts (Mezo, 2009).

Factorial Structure

It is a collection of statistical approaches used to show that the tool's components are consistent with the conceptual framework of the trait being measured or examined (Willmer *et al.*, 2019).

Exploratory Factorial Analysis (EFA)

Exploratory factor analysis is employed when the relationships between variables and latent components are unclear. As a result, factor analysis strives to identify the factors into which variables are classified and to minimize the number of observations to the fewest number of factors (Lloret *et al.*, 2017).

Confirmatory Factor Analysis (CFA)

A statistical technique that determines whether the factorial structure that is anticipated to be present in the research data set actually conforms to the actual structure (Brown, 2015).

Methods

The Study Methodology

The study employed the analytical descriptive approach for its suitability for this study purposes.

The study Population

The population of this study entailed Jordanian public and private university students for the academic year (2022/2023) which numbered (342000) according to the official website of the Ministry of Higher Education and Scientific Research.

Study Sample

The study sample consisted of 1,159 students from Jordanian universities using the convenient sampling method. The scale was electronically transformed via Google Drive and then had been sent through the social media platforms to the targeted population, Table 2, shows the distribution of the study sample members according to the demographic data.

Table (2): The participants of the study according to their demographic data.

Variable	Categories	Frequency	Percentage
Male	Male	362	%31
	Female	797	%69
Faculty	Scientific	313	%27
	Humanities	846	%73
University sector	Public	707	%61
	Private	452	%39
Total		1159	100%

The study instrument

The Mezo (2009) self-control and self-management scale had 150 items when it was first developed. On the advice of the judges, it was whittled down to 145 items and divided into three categories: fifty things for self-monitoring, fifty for self-evaluation, and forty-one for self-reinforcing. In an exploratory factor analysis, the scale's validity and reliability were appropriately indicated. The items were reduced to 17 after conducting the EFA distributed over three dimensions namely: self-monitoring (6 items), self-evaluation (5 items), and self-reinforcing (5 items).

Study Findings

The Findings of the first question, which states: *What are the psychometric properties of the SCMS Scale?*

To answer this question, the psychometric properties of the (SCMS) scale were examined as follows:

Validity Indicators

A. The Translation Validity

Before translating the scale, the two researchers reviewed its theoretical framework and it was presented in the form of a summary of the basic ideas to be a guide for the judges of the scale in the two stages of evaluating the translation and the content validity. When translating,

the meaning of the items and their clear expression of the intended idea were taken into account, and to verify the integrity of the translation, the scale in its English and Arabic versions was presented to two professors specialized in the English language, and the review ended with amending some translations of some items. In addition, the scale was presented to two psychologists to review the translation in preparation for the content validity procedure.

B. Content Validity

To ensure that the concepts and meaning in the translated version agreed with the original copy and that the scale's items were appropriate for the Jordanian setting, both the original scale and its translation were shown to various judges with expertise in language and educational psychology, some linguistic changes were made in response to their input, but no item was removed. With replies ranging from one to five (completely applicable, applicable, occasionally not applicable, not fully applicable), a five-step Likert scale was employed. These ratings apply to positive things, and no negatively constructed items were included in the grading. As a result, the scale's total degrees range from 17 to 85.

Reliability Indicators

The following indicators were used to assess the reliability of the SCMS scale:

- A. The half-segmentation method, using Spearman-Brown was extracted where its value reached 0.754, which is considered acceptable for the study purposes.
- B. Cronbach Alpha

Table (3): The Cronbach Alpha values.

Dimension	Cronbach Alpha
Self -Monitoring	0.77
Self-Evaluating	0.79
Self-Reinforcing	0.80
Total Degree	0.84

In terms of Cronbach's alpha, the results of Table 3 indicated that the internal consistency values for the dimensions were all deemed appropriate for the current study, with the overall degree having an internal consistency value of 0.84 while for the scale dimension it ranged between 0.77 and 0.80 these values consider accepted for the study purposes.

- c. One of the reliability indications, the standard error of estimate, was also obtained; the results showed that the study instrument has sufficient reliability indicators, with values ranging from 0.021 to 0.036.

The validity of the methods used to apply the study scale and the existence of a modest number of items that prevented respondents from giving monotonous or hurried answers on the scale may be responsible for this outcome.

The answers to this question were consistent with the findings of a study conducted in 2017 by Al-Samadi and Bani Abdo with the goal of standardizing the Mezo (2009) scale in a Saudi context. In that study, 288 students at Najran University were given the scale after it was translated. The findings showed that the scale contains several relevant indicators that are adequate. In this case, the validity coefficient was 0.85 and the reliability coefficient reached 0.85.

In addition, the results are consistent relatively with Tome-Fernandez, *et al.* (2020) study followed the same statistical procedures and came up with similar results of indicators. Moreover, these results are relatively consistent with Kaya (2017) despite that the study used a different scale, but with the same statistical procedures, which indicated the (IBIMS) scale, has sufficient consistency indices. The scale's overall internal consistency coefficient was determined to be 0.81.

The second question findings, which states: What are the factorial components of the SCMS scale using EFA?

Prior to conducting the factor analysis (KMO) Kaiser-Meyer-Olkin was conducted, its value reached 0.780, which is an indicators of the

appropriateness of the study sample size to perform EFA(Klein & Dabney, 2013).

Furthermore, the assumption of a normal distribution was confirmed by extracting the Kolmogorov-Smirnov test, whose value reached 0.794, with a p-value greater than 0.05, which indicates the normality of the obtained data. In addition, the following graphical representation was extracted.

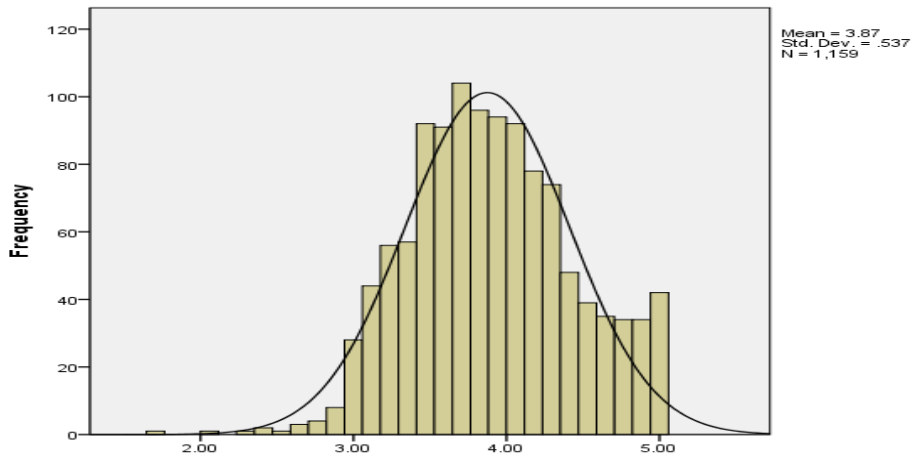


Figure (1): The normal distribution graphical representation.

Based on Figure 1, it is evident that normality assumption is achieved in the participant's responses to the study scale. The EFA was conducted using principal component method as Table4, display.

Table (4): The Explained Variance, Eigenvalues that Explain Students' Performance on the SCMS scale.

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.42	31.90	31.90	5.42	31.90	31.90
2	2.34	13.80	45.70	2.34	13.80	45.70
3	1.61	9.50	55.16	1.61	9.50	55.20
4	0.838	4.931	60.094			
5	0.763	4.486	64.580			
6	0.729	4.291	68.871			
7	0.654	3.844	72.715			
8	0.607	3.573	76.288			
9	0.560	3.295	79.582			
10	0.545	3.205	82.788			
11	0.500	2.941	85.728			
12	0.482	2.836	88.564			
13	0.449	2.644	91.208			
14	0.431	2.533	93.742			
15	0.412	2.424	96.165			
16	0.354	2.083	98.248			
17	0.298	1.752	100.000			

Based on the findings of Table 4, it is obvious that there are three factors whose eigenvalues were greater than one. The first factor had a value of 5.42, which explained 31.90% of the total explained variance, while the value of the second factor was 2.34 explaining 13.70% of the total explained variance.

Furthermore, the division of the first component by the second factor yields a number bigger than two, suggesting the presence of a unidimensional characteristic underlying the performance on the (SCMS) scale. Graph 2 illustrates, the eigenvalues' graphical representation (Scree plot).

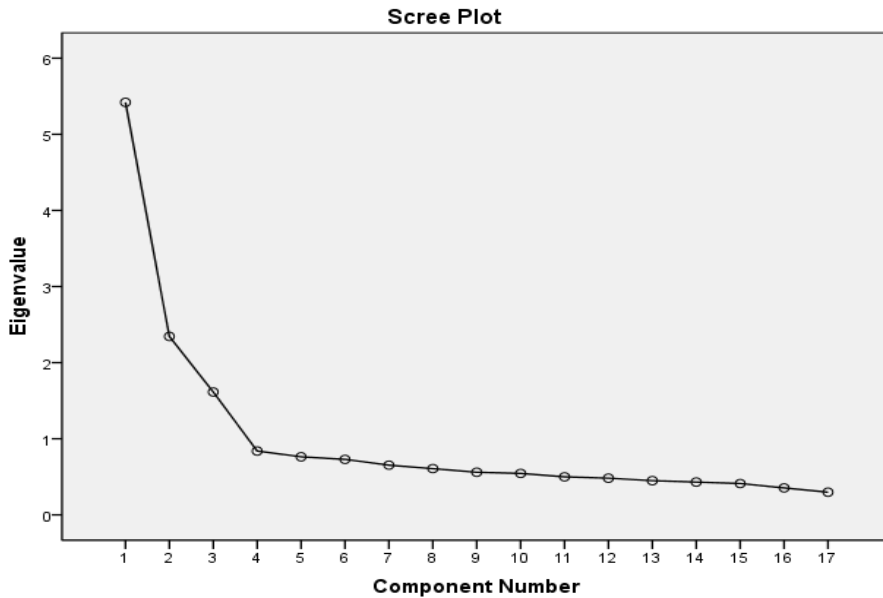


Figure (2): Graphical representation of the factors' eigenvalues.

Figure 2 shows that, three factors have an eigenvalue greater than one while the other factors are very close to one another. Table 6, shows the results of the Varimax approach, which was used to rotate the dimensions orthogonally.

Table (5): The rotated factor loading with grouping of the 17 items into three factors

Item	Component		
	First Factor	Second Factor	Third Factor
1		0.5650	
2		0.5880	
3		0.6890	
4		0.7420	
5		0.7130	
6		0.6660	
7	0.692		
8	0.748		
9	0.744		
10	0.746		
11	0.800		
12	0.752		
13			0.7340
14			0.6610
15			0.7070
16			0.6650
17			0.7890

Table 5 makes it evident that the items comprising the first dimension of the scale, self-evaluation, are also the same as the saturated items on the first component. Furthermore, the items comprising the second dimension of self-monitoring are those that are saturated on the second element. Lastly, the objects that constitute the third dimension of self-reinforcing are also those that are saturated on the third factor.

The validity of the procedures used to extract the exploratory factor analysis, starting with the adequate sample size for the study, the presence of the normal distribution property in the data, and the soundness of the scale implementation procedures, may help to explain these findings. The results of this investigation aligned with the Hassouna

(2012) study, which demonstrated that the scale possessed multiple credible validity indicators.

The findings also aligned with Buran et al. (2006), study results who found satisfactory validity and reliability indicators for the scale. Furthermore, our findings are consistent with the results of Casanova et al. (2019) and Kaya (2017), who found that the targeted instruments had sufficient consistency indices.

he findings of the third question, state: What is the factorial structure of the SCMS Scale using CFA?

The AMOS V24 program was utilized with the Maximum Likelihood approach, and the multivariate normality was assessed first, as shown in Table 7.

Table (6): The Assessment of the multivariate normality.

Variable	skew	c.r.	kurtosis	c.r.
q13	-1.271	-17.662	1.974	13.719
q14	-0.795	-11.048	0.779	5.413
q15	-0.949	-13.192	0.856	5.947
q16	-0.669	-9.300	0.588	4.089
q17	-0.917	-12.749	0.905	6.290
q7	0.363	5.051	-0.093	-0.649
q8	0.249	3.462	-0.459	-3.187
q9	-0.161	-2.243	-1.077	-7.483
q10	-0.478	-6.643	-0.980	-6.813
q11	0.027	0.373	-1.027	-7.135
q12	0.384	5.337	-0.332	-2.307
q1	-0.923	-12.831	1.153	8.015
q2	-0.258	-3.584	-0.284	-1.972
q3	-0.956	-13.292	0.945	6.569
q4	-0.704	-9.785	0.819	5.690

Variable	skew	c.r.	kurtosis	c.r.
q5	-0.671	-9.331	0.014	0.099
q6	-0.550	-7.637	0.154	1.073

Assuming a multivariate normal distribution, items in Table 6, exhibit multivariate normality, as the skewness and kurtosis values did not exceed the benchmark of +/- 2.0.

Some indicators were extracted to investigate the matching between the EFA and the CFA, namely:

The following diagram shows the structural model extracted using the Amos program, and the model fitting indicators as can be seen in Table7.

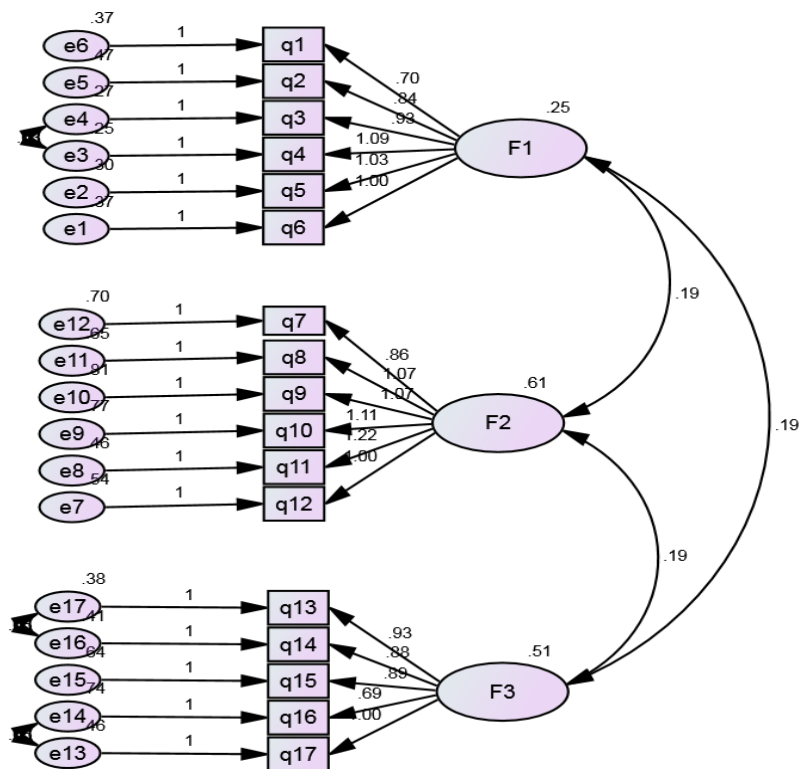


Figure (3): The diagram of the CFA.

Table (7): The model fitting indicators.

Fitting Indicator	The Criterion	Calculated Value		Fitting Results
(χ^2)	$> p 0.05$	0.000	p	Accepted
		436.321	χ^2	Accepted
		113	DF	Accepted
CMIN/DF	$CMIN/DF < 5$	3.90		Accepted
GFI	$GFI \geq 0.90$	0.95		Accepted
AGFI	$AGFI \geq 0.90$	0.94		Accepted
CFI	$CFI \geq 0.90$	0.94		Accepted
TLI	$TLI \geq 0.90$	0.93		Accepted
NFI	$NFI \geq 0.90$	0.92		Accepted
RMSEA	$0.08 \geq RMSEA \geq 0.00$	0.05		Accepted

Based on Table 7, it is obvious that all of the indicators used to validate the model's confirmatory validity with the data were accepted, with the exception of the Chi-Square indicator, which reached 436.321 with a statistical significance level of 0.000, less than 0.05. The following is a presentation of these indicators, their values, and their fitting results which indicates the fitting between the theoretical model and the obtained model resulted of CFA.

First: Standard Chi-square (CMIN/DF)

This indicator has a value of 3.90, which is considered acceptable, as it is less than five.

Two: Comparative Conformity Index (CFI)

This indicator, with a value of 0.94, is considered acceptable because it is greater than the minimum cut-off score of 0.90.

Three: The square root mean of rounding error (RMSEA)

This indicator has a value of 0.052, which falls within the acceptance test range of 0.000 to 0.080.

Four: Good Fit Index (GFI)

Its value amounted 0.95, and this value is very close to the value of the minimum cut-off score as a test for acceptance, which is 0.90.

Five: Adjusted Goodness of Fit Index (AGFI)

Its value reached 0.94, and this value is very close to the value of the minimum cut-off score as a criterion for acceptance.

Six: Tucker-Lewis Index (TLI)

Its value reached 0.93, which is greater than 0.90.

Seven: Standard Conformity Index (NFI)

This indicator has a value of 0.92, which is greater than the criterion value of 0.90.

Based on the findings we conclude that the proposed theoretical model, which represents the SCMS, has acceptable validity in the Jordanian context, as the majority of indicators tend to conform to the assumed model with the study sample's responses. Internal consistency is established as a result of statistically substantial correlations between the indicators that indicate the items and the underlying variables that represent the dimensions, hence supporting the assumed model's reliability.

The answers to this question aligned with the conclusions of the Erkosan (2016) study, which aimed to modify the Mezo scale for use in Turkey. The confirmatory analysis results showed that the fitting indicators were satisfied. As a result, the exploratory and confirmatory models were identical. The implications of addressing this question are consistent with the findings of Bendassolli, Borges-Andrade, and Gondim (2016), who discovered that the factor analysis yielded three components explaining scale performance. Moreover, the SCMS are appropriate for use in Jordan. Furthermore, the results of Casanova *et al.* (2019) and Kaya (2017), who discovered that the targeted instruments had appropriate validity indicators which support these conclusions.

Conclusion

Psychology is a multifaceted subject that requires extensive investigation and study to produce trustworthy and objective results. This development will not be possible until approaches and methods for data processing and analysis are developed. The process of self-control, and self-management, begins with the individual's challenge to a specific behavior and his desire to change it. These internal and external mechanisms enable the individual to orient his activity toward achieving his objectives. This study was conducted in response to a paucity of Arabic instruments with appropriate psychometric properties for assessing these talents in individuals. This study sought the factorial structure of the self-control and self-management (SCMS) scale using EFA and CFA, the study finding indicated fitting between the CFA model and the EFA model which means assuring the factorial validity of the targeted scale.

Several statistical analyses were utilized in this study, which involved an appropriate sample of university students, including EFA with SPSS and CFA using AMOS program. The study findings revealed that the model developed by exploratory factor analysis fits the confirmatory factor analysis model. As a result, this study produced a standardized scale with a factorial validity that the academics and interested parties can utilize.

Recommendations

Based on their findings, the researchers suggest the following:

- Using this study scale in future studies.
- Linking this scale with important variables in future investigations.
- Using structural equation modeling for data analysis to validate the model's presumed network of relationships.

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