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Psychometric Properties Evaluation of the Turkish Version of the Brief-Caffeine Expectancy Questionnaire (B- CaffeQ): An Adaptation Study in Recreationally Active Individuals

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A B S T R A C T

Caffeine is a psychoactive substance that is widely consumed in the world and Turkey. It is seen that its widespread consumption is related to expectancies of consumption as well as cultural factors. Recreationally active individuals may have various expectations from caffeine consumption in line with their lifestyles and goals such as physical, social and/or other aspects. It can be stated that caffeine consumption expectancies have an important role in the process of evaluating consumption patterns. However, in the literature, it seems to be very limited information about expectancies related to caffeine consumption. In this direction, the aim of the research was to test the compatibility of Brief-Caffeine Expectancy Questionnaire (B-CaffeQ) to Turkish culture and language. In the study, data were collected from two separate participant groups and were analyzed. Participants were composed of recreationally active individuals. To reveal the structure in the first group (n=278) data, Exploratory Factor Analysis (EFA), and to verify the structure in the second group (n=313) data, Confirmatory Factor Analysis (CFA) was used. Reliability was assessed by performing test-retest and internal consistency analyzes on both the two data groups. The findings show that the existing 7-dimensional structure contains good values in terms of validity and reliability, and it overlaps with the original B-CaffeQ structure. As a result, the data obtained shows that B-CaffeQ-TR is a valid and reliable measurement tool that could be used to evaluate the expectancies of caffeine use in the Turkish language and culture.

Keywords: Adaptation study, caffeine, caffeine expectancies, B-CaffeQ, factor analysis**.**

INTRODUCTION

Caffeine is a behavioral and psychoactive substance that stimulates the central nervous system and is being used by approximately 80% of the world population on a daily basis (Benowitz, 1990; Fredholm et al., 1999; Ogawa & Ueki, 2007; Han & He, 2012). Caffeine is found in certain leaves, beans and many fruits worldwide like cola nut and cacao and while tea and coffee being the main sources of caffeine in our diet, it can also be found in energy drinks with three times more caffeine content than cola drinks, chocolate-like nutrition with cocoa in them and in the content of many drugs sold with or without a prescription (Çelik, 2006; Amini, 2012; O'Brien, 2018).

Caffeine (1,3,7-trimethylxanthine) is most commonly found in coffee as the main pharmacologically active ingredient. In general, brewed coffee has the highest content among foodstuffs containing caffeine. Coffee (230-250ml), depending on the preparation method, the type of beans, roasting, grinding type and brand, contains 35-250 mg of caffeine while tea (150 ml) 24-50 mg, cola drinks (180 ml) 15-30 mg, cocoa (150 ml) 2-7 mg, chocolate (28 g) 1-36 mg, and the foods containing chocolate mostly contain less than 15 mg caffeine (Gray, 1998; Fredholm et al., 1999; Barone & Roberts, 2012).

Doses of up to 300-400mg per day in healthy adults (19 and over) are specified as safe upper limit without any harmful effects. This amount corresponds to 4-5 cups of medium coffee. However, it is stated that caffeine consumption equal to 6 cups of dark coffee generally does not cause any side effects. It is stated that the daily limit for adolescents and children is 100 mg and this limit should not be exceeded. However, coffee is not the only source of caffeine, and other sources caffeine consumed should also be taken into account (Gray, 1998; Nawrot et al., 2003; Seifert et al., 2011; Temple et al., 2017).

The average daily caffeine consumption in Turkey for adolescents and children aged 15 and below is an average of 197 mg and 202 mg for 18 and older. The source of caffeine for adolescents is mostly tea, carbonated soft drinks and instant coffee consumption (Küçükkömürler & Kurt, 2018). Average daily caffeine consumption in adult working individuals is 247 mg, and this is due to the consumption of carbonated soft drinks, chocolate, instant coffee, respectively (Khorshid & Dilek, 2013). It is seen that 20% of university students who consume caffeine have an average daily consumption of 250 mg and above, and this mostly due to the consumption of tea, coffee, Turkish coffee, carbonated soft drinks and chocolate (Aydın & Eryılmaz, 2019). In USA, while the main source of caffeine is coffee for the age of 18 and above, it is caffeine-containing soft drinks for the age of 2-17 (Frary et al., 2005).

Today, coffee, especially Turkish coffee as a part of everyday life in Turkey, is a cultural, social and historical value of Turkish society that is dating back to the Ottoman Empire and spreading all over the world (Yılmaz et al., 2017; Eren & Sezgin, 2018; Yücebalkan & Yurtsever, 2018; Karaman et al., 2019). The opening of the first coffeehouses in Istanbul goes back to 1553-1555s (Arıpınar, 1966; Bostan, 2001). Even though there is no coffee production in Turkey, Turkish coffee tradition was listed in UNESCO's representative list of intangible cultural heritage in 2013 (UNESCO, 2013). Looking at coffee consumption in recent years in Turkey, according to the International Coffee Organization data, while average annual coffee consumption between 2016-2018 was 76.000 tons, in just the year 2019, that amount went up to about 112.000 tons and that shows the interest for coffee has risen even more (ICO, 2019). The most preferred varieties of coffee, as the most consumed beverage after tea, are primarily Turkish coffee, then soluble coffee, filter coffee, iced coffee and new generation coffees whose consumption is gradually increasing (Karaman et al., 2019; Kaya & Toker, 2019). In fact, "let's have coffee", "let's have tea" is used instead of "let's meet". So many different expectations with recreational purposes like this lie behind these two main drinks.

Leisure can be understood as a historical-cultural manifestation intrinsic to the complexities of life in society and, as well as other dimensions of human experience, it is constituted by and in the relationships that people establish with their peers and with the structures that make up the uniqueness of each social scenario (Soutto Mayor & Isayama, 2017). Therefore, thinking about youth based on leisure experiences reflects the dialogue established between different sociologies, with a view to valuing the wealth and diversity that make up human activities. In this perspective, youth is taken as asocial category that has gained prominence in the last decades, making comprehensive studies necessary to be able to encompass the different youths in a contextualized and dialogical way with the different social aspects that comprise them.

Youth is understood as a social historical category and, therefore, presents itself from age markers only due to methodological criteria established in data collection, without being its main determinant. Thus, youth take place in the plural sense, comprising all youth formed by diversity and plurality, recognized in a country of continental proportions, such as Brazil. Likewise, it is necessary to consider that the line that demarcates the different phases of life, according to Pais (2009), appears increasingly tenuous, undoing age marks and rites of passage.

Currently, the features that define the boundaries between the different life stages are more fluid and discontinuous (Pais, 2009, p.373), and the age factor only is not enough to classify this phase of human development. The complexity that accompanies the topic in line with the lack of consensus among scholars makes it difficult to construct a concept of youth. Approaching more a diverse set of ways of life than the age limits, youth constitute a socially constructed category and subject to the countless and constant transformations of its time.

Research carried out with young people from Catalonia (Spain) by Lopes-Sintas, Gharaman, and Rubiales (2017) demonstrated that youth is not a homogeneous category. The authors concluded that leisure habits varied according to social class and, within the same class by age and gender. It is in this regard that cultural practices and specifically leisure take a privileged position in the lives of young people, insofar as they provide sociability, identity construction, and human development.

There is evidence that some individuals' expectancies of caffeine's effects on physical performance and mood may affect the magnitude of these effects. There are studies showing that caffeine anticipation effect affects mood, attention,

and vitality (Dawkins et al., 2011). In the case of caffeine expectancy, placebo administration stimulates changes in the dopaminergic system in the brain. The neurobiological mechanisms of caffeine and placebo caffeine were similar in the brain, but somewhat more limited in placebo caffeine (Kaasinen et al., 2004). It is stated that the expectancy of the individual may manage the placebo effect and accordingly, the expected effect of caffeine or the drug consumed may change the response to placebo (Fillmore & Vogel-Sprott, 1992). Beyond the pharmacological effects of a drug, an individual's expectancies of it may also contribute to the intensive experiences of the drug in question (Heinz et al., 2009). The fact that individuals who are told they had decaffeinated coffee but are given caffeine perform worse than those who do not consume caffeine, support the view that the pharmacological effects of caffeine act synergistically with anticipation (Elliman et al., 2010). In addition, it has been stated that the effects caused by caffeine withdrawal may also be caused by the negative expectancies (nosebo) of an individual (Juliano et al., 2019). These results provided evidence that the subjective and behavioral effects of caffeine consumption may be positive or negative depending on the individual's expectancies from caffeine. These expectancies may arise from the individual's previous experiences with caffeine (Oei & Hartley, 2005; Harrell & Juliano, 2009). The effects of caffeine depend on the individual's expectancies, so if the individual consumes a beverage expecting that it has caffeine in it, these expectancies may be generalized as placebo conditions (Smith, 2002). In placebo studies, it is stated that one of the factors that cause an individual to respond to a treatment may be caused by the type of individual who may respond to treatment via expectancies. In other words, this view is not specific to the treatment of the practice applied, rather that the response may be shaped according to the expectancies of the individual, that expectancies may cause a placebo (or nosebo) effect (Geers & Caplandies, 2020). When there is confidence in the drug effect of a drug in a particular activity, an expectancy of a specific behavioral effect of that drug may also be formed. Based on expectancies about the effects of caffeine, the behavioral response to this drug derivative can be predicted (Fillmore, 1999). However, this expectancy theory is insufficient to explain the fact that some individuals without expectancies not showing stimulating effects when they consume caffeine for the first time (Oei & Hartley, 2005). There are other studies which do not observe expectancy affects in caffeine consumption, suggesting placebo and expectancy effects are caused by introspection (Schneider et al., 2006). The

results showed that both pharmacological and expectancy factors affect the actual and expectancy effects of caffeine in an individual's behaviour (Lotshaw et al., 1996).

Some of the performance enhancing effects of caffeine appear to be linked to expectancies. Since the bitter taste of caffeine may act as a signal that caffeine has been consumed, it seems possible that some anticipatory effects of caffeine consumption may be driven by this bitter taste (Pickering, 2019). It is said that consuming 300-400 mg caffeine a day, equivalent of 3-4 cups of coffee daily, may have positive effects on the well-being of an individual and may partially improve mental-physical disorders (Fatolahi et al., 2020). Performance increases were also observed with individuals who consume coffee regularly when they are given decaffeinated coffee. This suggests a caffeine related stimulus causes a caffeine related effect. This result also indicates, other features of coffee such as its smell and taste rather than caffeine itself, may also be effective in the development of these expectancies. It has been observed when these individuals who consume coffee regularly do not wish to consume caffeine yet want to benefit from its performance enhancement effects, decaffeinated coffee also creates a good effect on performance enhancement (Fukuda & Aoyama, 2017). In addition, the expectancy for the positive effects of caffeine consumption is an indicator of how much and how often caffeine will be consumed (Lau-Barraco & Linden, 2014).

Since caffeine consumption is rather widespread in Turkey, it can be seen that an instrument to be used in research on caffeine consumption expectancies such as caffeine expectancy survey is needed. Accordingly, the purpose of this research is to adapt and verify the Breif-Caffeine Expectancy Questionnaire (B-CaffeQ) which has been developed by Kearns et al. (2018) and consists of seven dimensions: withdrawal / dependence, energy / work enhancement, appetite suppression, social / mood enhancement, physical performance enhancement, anxiety / negative physical effects, and sleep disturbance, to Turkish culture and language.

METHOD

Research Model

The protocol of the study was registered at clinicaltrials.org with the identifier NCT06038903. This study was supported by Eskişehir Technical University Scientific Research Projects Commission under grant no: 24ADP064. This research model includes a methodological process in which the Brief-Caffeine Expectancy Questionnaire is evaluated through the validity and reliability analysis of the Turkish language and culture. This process includes

some steps deemed necessary for the adaptation of the questionnaire. These stages were followed in the following order (Hambleton & Patsula, 1999; Seçer, 2015):

- Survey translation.
- Evaluating the items and making the necessary corrections.
- Testing the items.
- Creating the initial form of the questionnaire.
- Implementation of the survey.
- Conducting analyses.
- Finalizing the questionnaire.
- Examination of the measurement model.
- Reporting of the process.

Research Group

The participants in this study are recreationally active individuals who do physical activity for at least 20 minutes 3 times a week. Many people consume caffeine consciously for certain purposes. Recreationally active individuals may have various expectations from caffeine consumption in line with their lifestyles and goals such as physical, social

and/or other aspects. When increasing recreational activity participation and caffeine consumption are considered together, it becomes important to examine expectations. In line with this idea, caffeine consumption expectancies have an important role in the process of evaluating consumption patterns. Data were collected from two different groups for validity and reliability assessments. Data were obtained from the first group, in which the processes related to Exploratory Factor Analysis (EFA) were carried out, and the processes related to Confirmatory Factor Analysis (CFA) were carried out with the data collected from the second group. Groups consist of participants selected by the purposive sampling. For the purpose of this research, individuals who consume products containing caffeine such as coffee, tea, and soft drinks constitute the research group. Accordingly, data were collected from 278 participants for EFA process and from 313 participants for CFA process. When these numbers are evaluated in terms of sample size, it can be said that they are close to good for EFA and good for CFA (Comrey & Lee, 1992; Hoyle, 2000). Demographic information of the participants are presented in Table 1.

Table 1. Demographic characteristics of participants.

Variable	Sample 1		Sample 2	
	n=278	%	n=313	%
Biological sex				
Male	148	53.2	163	52.1
Female	130	46.8	150	47.9
Age				
20 or under	31	11.2	91	29.1
21-30	123	44.2	132	42.2
31-40	74	26.6	48	15.3
41-50	38	13.7	31	9.9
>51	12	4.3	11	3.5
Education				
High school or leaving	38	13.7	36	11.5
Associate or Undergraduate	185	66.5	230	73.5
Postgraduate degree	55	19.8	47	15
Primary caffeine type				
Coffee	173	62.2	213	68.1
Soft drinks	20	7.2	24	7.6
Tea	43	15.5	44	14.1
Caffeine in general	42	15.1	32	10.2

Data Collection Tools

During the data collection phase, a questionnaire form consisting of three parts was used. In the first part, explanations about the research and caffeine containing product information which the participant based their answers on were included. In the second part of the questionnaire, Brief-Caffeine Expectancy Questionnaire, which is a simplified version of the caffeine expectancy questionnaire developed by

Huntley and Juliano (2012), was included. This questionnaire, whish has been simplified by Kearns et al. (2018) by carrying out validity and reliability studies, has a 7-factor structure, consisting of 20 articles (Huntley & Juliano, 2012; Kearns et al., 2018). The rating of this questionnaire, which was created in six Likert type, was defined as "1 = Strongly Disagree" to "6= Strongly Agree". In the last part of the questionnaire, there were questions

from which the demographic information of the participants such as age, gender, educational status, etc. obtained.

Aforementioned questionnaire form was prepared on an online platform and the connection link was provided. This link was conveyed to participants through posts shared on these social media accounts.

Language Equivalence

In the process of adapting B-CaffeQ to Turkish language and culture, back translation method has been used in order to provide language equivalence (Brislin & Freimanis, 2001). Accordingly, both the English to Turkish and Turkish to English translations were made independently by two different linguists who are adept in both languages and cultures. Finally, the articles translated back into English were compared with their original forms.

Data Analysis

EFA was used in order to determine what kind of a structure pattern the survey constitutes in Turkish language and culture. CFA was used to test the accuracy of the structure resulting from EFA. Reliability tests of the questionnaire were performed

through Cronbach Alpha coefficient and test-retest analysis.

RESULTS

Construct Validity

In order to test the construct validity of the questionnaire, the suitability of the first group data for EFA was evaluated. Accordingly, the data obtained from Kaiser-Meyer-Olkin (KMO) and Bartlett's Test of Sphericity were analyzed. It was determined that KMO value was .800 and Bartlett's Test of Sphericity (3305.583 df: 190, p: .00) was significant. MSA (Measures of Sampling Adequacy) values in the anti-image correlation matrix were examined in order to check the suitability of each item for factor analysis. It was observed that the MSA values of the substances ranged from .546 to .909. In the analysis process, principal component analysis was used as the factor extraction method. The cut-off point for factor loadings was processed as .50 and the lowest factor loading was found to be .788 (Hair et al., 2014). Findings of factor loadings and communalities emerging accordingly are presented in Table 2.

Table 2. Factor loadings and communality percentages of the EFA.

Items and Factors	Factor loadings	Communalities
Physical performance enhancement		
4. Caffeine improves my athletic performance.	.919	.894
7. Workouts are better after having caffeine.	.904	.899
17. I can exercise longer if I have caffeine.	.842	.840
Energy/work enhancement		
1. Caffeine picks me up when I am feeling tired.	.836	.798
10. Caffeine makes me feel more alert.	.816	.853
18. Caffeine makes me feel more energetic.	.788	.836
Withdrawal/dependence		
8. I would experience caffeine withdrawal if I went without caffeine.	.853	.836
12. I need to have caffeine every day.	.843	.828
15. I would get a headache if I went without caffeine.	.798	.703
Appetite suppression		
5. Caffeine suppresses feelings of hunger.	.828	.762
13. Caffeine allows me to skip meals.	.825	.770
19. Caffeine decreases my appetite.	.875	.810
Anxiety/negative physical effects		
3. I am easily stressed after having caffeine.	.809	.670
6. Caffeine makes me jittery.	.877	.787
9. Caffeine makes me feel nervous.	.833	.747
Social/mood enhancement		
2. Conversations are better when using caffeine.	.609	.641
11. Caffeine makes me friendlier.	.805	.795
16. I feel more sociable after having caffeine.	.820	.801
Sleep disturbance		
14. I have difficulty sleeping after having caffeine.	.916	.871
20. Caffeine late in the day gives me insomnia.	.911	.864

As a result of the analysis, it was determined that the items in the questionnaire constitute a 7-factor structure with eigenvalues above 1. Parallel to this,

when the screeplot graph is examined, it can be seen that the sharp decline ends after the 7th factor (Figure 1). The explained variance of the 7-factor

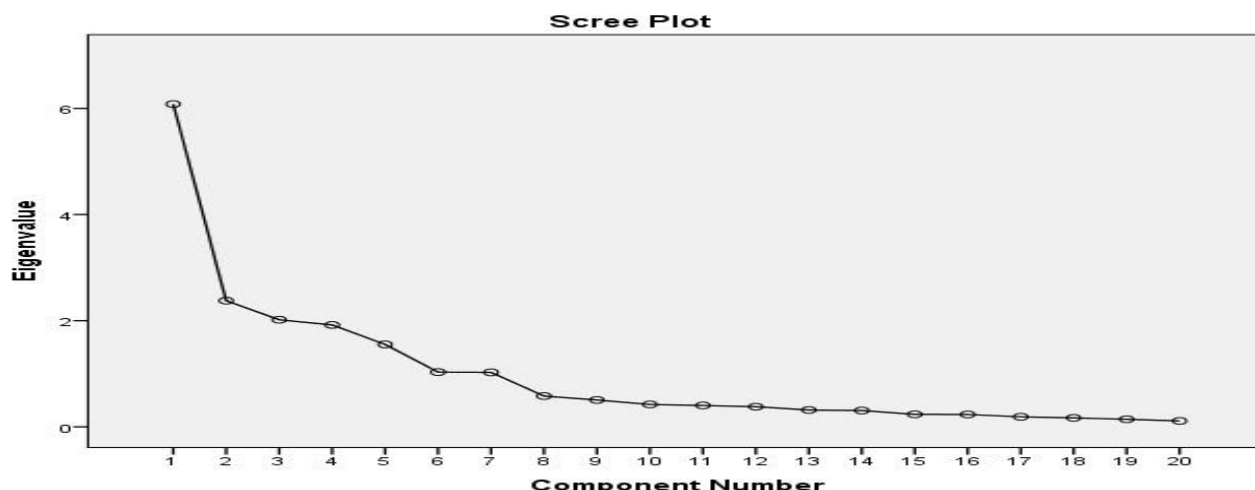structure was found to be 80.03%. [Figure 1 near hear].

Figure 1. Screeplot for the EFA.

In addition, Horn's (1965) parallel analysis applied and when the simulative data were compared with the real data, a five factor structure emerged (Table 3). However, considering the sharp decrease in eigenvalues and the clarity of the simulative difference, the original seven factor structure was considered appropriate (Tabachnick & Fidel, 2013). [Table 3 near hear].

Table 3. Eigen Values of the Actual Data and the Simulative Data.

Factor	Eigen values of the actual data	Eigen values of the simulative data
1	6.081	1.505
2	2.377	1.416
3	2.018	1.345
4	1.920	1.283
5	1.553	1.228
6	1.031	1.174
7	1.026	1.126
8	.580	1.084
9	.506	1.043
10	.422	0.999

In order to verify the structure emerged as a result of EFA, CFA processes were performed on the second group data. After the first analysis, considering the program suggestion, the modification was performed between the 4th and 7th items in the physical performance enhancement factor and they were analyzed once more. As a result of the analysis, Chi-Square ($\chi2$) = 382.81. Degrees of Freedom (df) = 148.$\chi2$ / df = 2.587; RMSEA = .071; RMR = .11; SRMR = .050; NFI = .95; NNFI = .96; CFI = .97; GFI = .89; AGFI = .84 were calculated. The path diagram, the factor loadings of the items and the modification performed as a result of the CFA processes are given in Figure 2. [Figure 2 near hear].
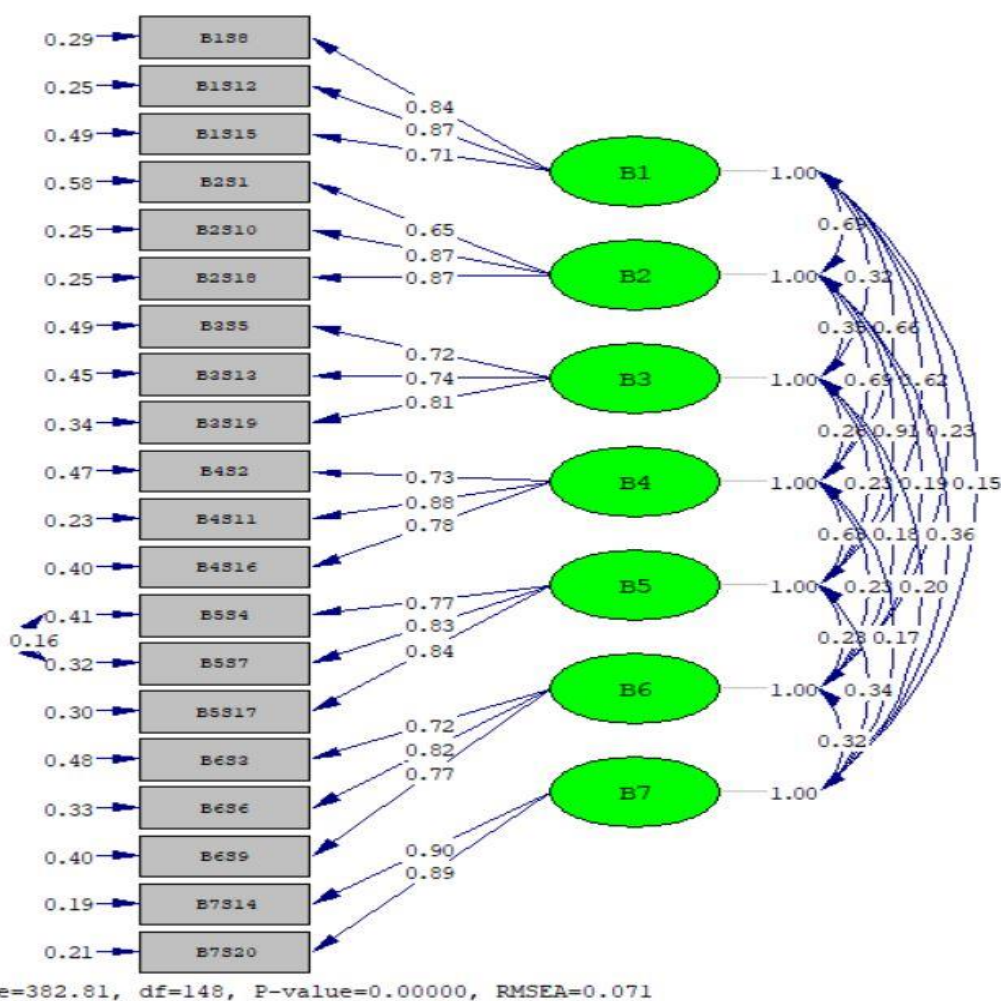
Figure 2. The path diagram of CFA.

Convergent Validity

Factor loadings were examined in order to evaluate the convergent validity of the structure. The lowest factor loadings were found to be .788 as a result of EFA and .650 as a result of CFA. Considering these values, it can be stated that convergent validity was achieved (Hair et al., 2014).

Discriminant Validity

Correlation analysis was conducted to evaluate the discriminant validity of the structure. It has been determined that among EFA factors the highest value belong to social / mood enhancement and energy / work enhancement factors, and among CFA factors, the highest correlation values were between energy/work enhancement and physical performance enhancement factors. The correlation values between the factors for both data sets are presented in Table 4. In addition, AVE, CR, MSV and ASV values are presented in Table 5. [Table 4 near hear]. [Table 5 near hear].

Table 4. EFA and CFA factor correlations for samples 1 and 2.

Factors	1	2	3	4	5	6	7
1. Withdrawal/dependence	-	.611**	.302**	.571**	.514**	.207**	.152**
2. Energy/work enhancement	.505**	-	.323**	.606**	.747**	.143*	.294**
3. Appetite suppression	.261**	.215**	-	.226**	.203**	.142*	.166**
4. Social/mood enhancement	.495**	.560**	.244**	-	.504**	.191**	.144*
5. Physical performance enhancement	.230**	.477**	.229**	.422**	-	.184**	.286**
6. Anxiety/negative physical effects	.064	.006	.061	.113	.078	-	.276**
7. Sleep disturbance	.102	.175**	.114	.091	.165**	.200**	-

Table 5. AVE, CR, MSV, and ASV values.

	Withdrawal/ dependence	Energy/work enhancement	Appetite suppression	Social/mood enhancement	Physical performance enhancement	Anxiety/ negative physical effects	Sleep disturbance
AVE	.692	.662	.711	.564	.790	.706	.834
CR	.871	.854	.880	.792	.919	.878	.910
MSV	.476	.628	.123	.476	.628	.102	.130
ASV	.246	.345	.070	.243	.305	.055	.073

Internal Consistency

Internal consistency was evaluated considering the Cronbach's Alpha coefficient for each factor in B-CaffeQ and for the entire B-CaffeQ. It was determined that the alpha values for the dimensions ranged between .798 and .923. All Cronbach's Alpha values for factors and B-CaffeQ for EFA and CFA are presented in Table 6. [Table 6 near hear].

Table 6. Cronbach's Alpha coefficients for B-CaffeQ and factors.

Data set	Withdrawal/ dependence	Energy/work enhancement	Appetite suppression	Social/mood enhancement	Physical performance enhancement	Anxiety/ negative physical effects	Sleep disturbance	B-CaffeQ (total scale)
EFA	.860	.899	.823	.801	.923	.800	.852	.861
CFA	.847	.836	.798	.834	.880	.816	.888	.894

Test-Retest Technique

Test-retest data were obtained from the certain group twice, at the beginning and end of the 3-week process. The correlation coefficient was found to be .786 (p <.01) by analysing the obtained data.

DISCUSSION AND CONCLUSION

It is stated that expectancy of caffeine has different effects and these effects are as important as the pharmacological effects of caffeine itself (Shabir et al., 2018). However, expectancies about the effects of caffeine may create an additional synergistic effect on the pharmacological effects of caffeine (Shabir et al., 2019). The original form of the Caffeine Expectancy Questionnaire (7 factors, 47 items), which is a measurement tool designed to determine the psychological, physiological, physical, social and performance expectancies of individuals' caffeine consumption, was developed by Huntley and Juliano (2012) and as a result of the study it has been demonstrated that caffeine consumption frequency and consumption amount are associated with withdrawal / dependence, energy / work enhancement, appetite suppression, social / mood enhancement, physical performance enhancement and lower expectancies for sleep disturbance and anxiety / negative physical effects and that adult individuals have either positive or negative

expectancies about the effects of their caffeine consumption (Huntley & Juliano, 2012). There are also adaptations of this questionnaire in different languages such as Portuguese and German (Schott et al., 2016; Mendes et al., 2020).

Since the length of the questionnaire prevents its widespread adaptation, Kearns et al. (2018) simplified the original questionnaire (B-CaffeQ) and conducted a validity and reliability study on 975 university students with different ethnicities (Kearns et al., 2018). And the adaptation study was carried out on B-CaffeQ, considering that the short version of the questionnaire would be more suitable for application.

When the findings of EFA are examined, it is seen that the factor loadings exceed over .70. The fact that factor loadings are at this level indicates that the structure is well defined (Hair et al., 2014). As a result of a modification in the CFA process, the SRMR value has changed from acceptable to good fit (Byrne, 2016; Schermelleh-Engel et al., 2003). When the other fit indices were examined, it was found that χ2 / df, RMSEA, NNFI values showed good fit, NFI, CFI values were good. GFI and AGFI values are seen to be quite close to acceptable (Hu & Bentler, 1999; Hair et al., 2014; Byrne, 2016). It is seen that fit indices found as a result of CFA were at a similar level to the original KafBA (CFI = .98, NNFI

= .98 RMSEA = .06, SRMR = .08) developed by Huntley and Juliano (2012) and -KafBA ($\chi2$/df = 3.15 RMSEA = .066, CFI = .953, SRMR = .040) developed by Kearns et al. (2018) fit indices (Huntley & Juliano, 2012; Kearns et al., 2018).

When the findings obtained from the research are examined, it is seen that other validity (convergent and discriminant) and reliability (internal consistency and test-retest) tests are accomplished (Bagozzi & Phillips, 1982; Bagozzi & Yi, 1988; MacKenzie et al., 2011; Hair et al., 2014; Kline, 2016).

The EFA and CFA results obtained from this study, which is aimed to adapt B-CaffeQ-TR to Turkish language and culture, show that the adapted questionnaire and the original (B-CaffeQ) share a similar structure. Accordingly, it has been concluded that B-CaffeQ-TR is a valid and reliable measurement instrument for Turkish language and culture. Researchers planning to do research on caffeine can use this as a suitable measurement tool to investigate the caffeine consumption expectancies of the participant groups whose native language is Turkish and who adopt Turkish culture.

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LIMITATION AND FUTURE STUDIES

In this study, data were collected online using purposive sampling method. Although there has been an increase in internet use of older age groups in recent years, it was also seen to have a lower rate compared to the younger population (Ramón-Jerónimo et al., 2013; Saboor et al., 2015; Turkstat, 2020). Therefore by choosing a different sampling method (such as quota sampling) and environment, the participation rate of elderly individuals can be increased. In addition, its application with different samples would provide positive contributions in terms of generalizability.

It should also be taken into consideration that the findings of this research may differ in different age groups and/or different cultural groups. Accordingly, new validity studies specific to different groups or cultures can be conducted in the future. With that, considering that there may be different factors related to the expectancies of caffeine consumption,

it can be considered that different factors can be added to this questionnaire, regarding the questionnaires carried out in different groups for different expectancies, such as expectancies from prescription and non-prescription stimulants (Aarons et al., 2001; Looby & Earleywine, 2010). Thus, this questionnaire could be verified in different and specific populations such as children, young people, elderly and athletes and it could be made to appeal to a wider population in determining the caffeine consumption expectancies.

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Appendix (Turkish Version of the Questionnaire)

Talimatlar: Kafeinin üzerinizdeki etkileri hakkındaki görüşleriniz ile ilgili bir araştırma yapmaktayız. Kafeinin olası etkilerinin listesi aşağıdadır. Lütfen aşağıdaki her bir ifadeyi kafein kullandığınızda sizin için olası veya olası olmamasına göre değerlendirin.

Yanıtlarınızı, seçtiğiniz kafein içeren ürüne göre veriniz. Eğer çok sayıda kafein içeren ürün kullanıyorsanız yanıtlarınızı sadece tercih ettiğiniz ürün için veriniz veya yanıtlarınızı "genel olarak kafein" seçeneğine göre veriniz.

Kafein Beklenti Anketi - Kısa Formu (KafBA-K)

Çok nadir kafein tüketseniz bile, lütfen kafein tüketirseniz sizi nasıl etkileyeceği ile ilgili beklentilerinize göre değerlendirin

Yanıtlarım aşağıdaki işaretli olana dayanmaktadır (lütfen bir tanesini işaretleyin):
☐ Kahve
☐ Alkosüz meşrubatlar
☐ Çay
☐ Kafein içeren ilaçlar (örneğin Excedrin, No-Doz)
☐ Genel olarak kafein
☐ Diğer (lütfen belirtiniz): _____

	Maddeler	Çok düşük ihtimal	Düşük ihtimal	Biraz düşük ihtimal	Biraz yüksek ihtimal	Yüksek ihtimal	Çok yüksek ihtimal
1.	Yorgun hissettiğim zaman kafein beni canlandırır.	☐	☐	☐	☐	☐	☐
2.	Kafein tükettiğimde sohbetler daha iyi olur.	☐	☐	☐	☐	☐	☐
3.	Kafein aldıktan sonra kolay strese girerim.	☐	☐	☐	☐	☐	☐
4.	Kafein sportif performansımı arttırır.	☐	☐	☐	☐	☐	☐
5.	Kafein açlık hissimi bastırır.	☐	☐	☐	☐	☐	☐
6.	Kafein beni gerginleştirir.	☐	☐	☐	☐	☐	☐
7.	Kafein aldıktan sonra antrenmanlarım daha iyi geçer.	☐	☐	☐	☐	☐	☐
8.	Kafeinden mahrum kalırsam kafein yoksunluğu çekerim.	☐	☐	☐	☐	☐	☐
9.	Kafein beni asabi hissettirir.	☐	☐	☐	☐	☐	☐
10.	Kafein beni daha atik hissettirir.	☐	☐	☐	☐	☐	☐
11.	Kafein beni daha dost canlısı yapar.	☐	☐	☐	☐	☐	☐
12.	Her gün kafein almaya ihtiyaç duyarım.	☐	☐	☐	☐	☐	☐
13.	Kafein, öğün atlamamı sağlar.	☐	☐	☐	☐	☐	☐
14.	Kafein aldıktan sonra uyumada zorluk çekerim.	☐	☐	☐	☐	☐	☐
15.	Kafeinden mahrum kalırsam baş ağrısı çekerim.	☐	☐	☐	☐	☐	☐
16.	Kafein alıktan sonra daha sosyal hissederim.	☐	☐	☐	☐	☐	☐
17.	Kafein alırsam daha uzun süre egzersiz yapabilirim.	☐	☐	☐	☐	☐	☐
18.	Kafein beni daha enerjik hissettirir.	☐	☐	☐	☐	☐	☐
19.	Kafein iştahımı azaltır.	☐	☐	☐	☐	☐	☐
20.	Geç saatlerde aldığım kafein bana uykusuzluk verir.	☐	☐	☐	☐	☐	☐