A SCALE DEVELOPMENT STUDY TO DETERMINE PSYCHOSOCIAL EVALUATIONS FOR SEAFARERS

DENİZCİLERİN PSİKOSOSYAL DEĞERLENDİRMELERİNİ BELİRLEMEK İÇİN ÖLÇEK GELİŞTİRME ÇALIŞMASI

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Abstract

Seafarers who spend long periods at sea and therefore have little contact with life on land face various difficulties because of their strenuous working conditions. While identifying those challenges and carrying out psychosocial interventions has the potential to increase the psychosocial well-being of seafarers, there is no scale to determine the psychosocial risks that seafarers contend with in the course of their work. This study was conducted with the aim of identifying the elements of the psychosocial risks they face so such a scale can be developed. A preliminary form was prepared for that purpose. Once the validity reliability rate of the form was determined on the basis of feedback, it was submitted to 735 members of the Turkish Seafarers' Union residing in Istanbul and the resultant data was analyzed with SPSS and AMOS. As a result of the exploratory factor analysis, 3 factors named "Psychological/Spiritual Problems", "Problems Related to Family and Environment" and "Problems Related to Work Environment" and 26 items were determined. It was determined that the total variance explained was 60.02%. In the confirmatory factor analysis performed, the structure consisting of 26 items and 3 sub-dimensions provided good fit values. As a result, it was concluded that a 3-factor Psychosocial Evaluation Scale for Seafarers consisting of 26 items is a valid and reliable scale.

Keywords: Psychosocial Evaluations, Seafarers, Work-Related Stress at Sea, Quality of Work Life.

Öz

Uzun sürelerini denizde geçiren ve bu nedenle karadaki yaşamla çok az teması olan denizciler, yorucu çalışma koşulları nedeniyle çeşitli zorluklarla karşılaşmaktadır. Bu zorlukların tespit edilmesi ve psikosoyal müdahalelerin gerçekleştirilmesi denizcilerin psikosoyal refahını artırma potansiyeline sahip olmakla birlikte, denizcilerin çalışmaları sırasında karşı karşıya kaldıkları psikosoyal riskleri belirlemeye yönelik bir ölçek bulunmamaktadır. Bu çalışma, böyle bir ölçeğin geliştirilebilmesi için denizcilerin karşılaştıkları psikosoyal risklerin unsurlarını belirlemek amacıyla yapılmıştır. Bu amaçla bir ön form hazırlanmıştır. Formun geçerlilik güvenilirlik oranı geri bildirimler doğrultusunda belirlendikten sonra İstanbul'da ikamet eden 735 Türkiye Denizciler Sendikası üyesine gönderilmiş ve elde edilen veriler SPSS ve AMOS ile analiz edilmiştir. Yapılan açıklayıcı faktör analizi sonucunda "Psikolojik/Ruhsal Sorunlar", "Aile ve Çevre ile İlgili Sorunlar" ve "İş Ortamı ile İlgili Sorunlar" olmak üzere 3 faktör ve 26 madde belirlenmiştir. Açıklanan toplam varyansın %60,02 olduğu tespit edilmiştir. Yapılan doğrulayıcı faktör analizinde 26 madde ve 3 alt boyuttan oluşan yapı iyi uyum değerleri sağlamıştır. Sonuç olarak 26 maddeden oluşan 3 faktörlü Denizciler İçin Psikosoyal Değerlendirme Ölçeğinin geçerli ve güvenilir bir ölçek olduğu sonucuna varılmıştır.

Anahtar Kelimeler: Psikososyal Değerlendirmeler, Denizciler, Denizde İşle İlgili Stres, İş Yaşamı Kalitesi.

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GENİŞLETİLMİŞ ÖZET

Çalışmanın Amacı

Denizcilik fiziksel ve psikolojik açısından ciddi sonuçlar doğurabilecek, zorlu, stresli ve yüksek riskli bir meslektir. Denizcilerin psikolojik ve psikososyal sağlığının araştırılması ve ele alınması önemlidir. Farklı ülkelerde denizcilerin ruh sağlığı ve denizcilerin yaşamlarındaki psikolojik stres hakkında bazı araştırmalar yapsa da Türkiye'de denizcilerin ruh sağlığı ve psikososyal iyiliklerine dair az çalışma bulunmaktadır. Bu çalışmanın amacı Türkiye'de denizcilerin ruh sağlığı ve psikososyal iyiliklerini değerlendiren bir ölçme aracının geliştirilmesidir.

Araştırma Soruları

Çalışmanın veri toplama aracı olarak üç bölümden oluşan bir soru formu kullanılmış olup ilk bölüm, cinsiyet, yaş, medeni durum, çocuk sayısı, eğitim düzeyi, gelir düzeyi, mesleği denizde çalışma süresi ve en son seferde geçirdikleri süre ile bir yıl içinde denizde geçirdikleri süre yer almıştır. İkinci bölümde, araştırmacılar tarafından oluşturulan geçerlilik/güvenilirlik çalışmaları yapılan Denizciler için Psikososyal Sorunları Değerlendirme Ölçeği'nin taslağı yer almıştır. Taslak ölçek 53 maddeden oluşan 5'li Likert tipi (1-hiçbir zaman, 5-her zaman) bir ölçek olarak tasarlanmıştır.

Literatür Araştırması

Denizciliğin doğası göre çok sayıda zihinsel, fiziksel ve psikososyal stres faktörü bulunmaktadır. Denizcilerin yaşam ve çalışma koşulları, ailelerinden ve evlerinden aylarca ayrı kalmaları nedeniyle daha da kötüleşmektedir. Ayrıca, denizciler, fiziksel refahları üzerinde olumsuz etki yaratabilecek bir dizi fiziksel ve psikolojik risk ve tehlikeye maruz kalabilmektedir. Denizcilerin fiziksel ve psikolojik risk ve tehlikelerle karşılaşması, denizcilerin karmaşık yaşam ve çalışma koşullarının araştırılmasına ihtiyaç bulunmasını beraberinde getirmektedir.

Yöntem

Bu çalışma, ölçek geliştirme çalışmasıdır. Bir ölçeğin doğru ölçümler yapabilmesi için hem geçerlilik hem de güvenilirlik göstermesi gerekir. Bu çalışmada, ölçeklerin geçerlilik çalışmaları kapsamında açımlayıcı ve doğrulayıcı faktör analizleri, güvenilirlik çalışmaları çerçevesinde madde toplam korelasyonu ve Cronbach's alpha analizleri yapılmıştır. Araştırma evrenini Türkiye Denizciler Sendikası üyeleri oluşturmaktadır (5500). Çalışma örneklem büyüklüğü, nüfus oranlarına dayalı kümelenmemiş tek aşamalı tesadüfi olasılıklı öğrenme yöntemi ile belirlenmiştir. Örneklem büyüklüğü kabul edilebilir hata düzeyi %4, güven aralığı %95, olayın ana kütlede gerçekleşme olasılığı %50 olacak şekilde hesaplanmıştır. Soru formunda kayıp değerlerin olabileceği göz önünde bulundurularak 735 kişiden ankete katılmaları istenmiştir.

Sonuç ve Değerlendirme

Çalışmanın amacı Denizciler İçin Psikososyal Değerlendirme Ölçeği geliştirmek olan bu çalışmada, öncelikle araştırmacılar tarafından literatürdeki bilgilere dayanarak 53 maddelik bir taslak oluşturulmuş ve bu 53 madde için veri toplanmıştır. AFA sonrasında belirlenen 3 faktörlü 26 maddeden

oluşan yapı DFA ile yeniden ele alınmıştır. Ardından güvenilirlik analizleri gerçekleştirilmiştir. Taslak ölçek maddeleri ile yapılan ilk AFA'da binişik maddeler ve faktör yükü 0,40'ın altında olan maddeler çıkarılarak AFA tekrarlanmıştır. Toplam 26 madde ve 3 faktörden oluşan ölçeğin toplam varyansın %60,02'sini açıkladığı görülmüştür. Elde edilen bulgular literatürdeki AFA'ya ilişkin bilgilerle birlikte değerlendirildiğinde AFA sonucunda elde edilen faktör ve maddelerin geçerli olduğu tespit edilmiştir. DFA'nın ortaya koyduğu yapı için DFA sonucunda elde edilen uyum indekslerinin kabul edilebilir aralıklarda olduğu sonucuna varılmıştır. Ölçeğin mevcut haliyle geçerli olduğu tespit edilmiş ve güvenilirlik analizleri yapılmıştır. Güvenilirlik analizi sonucunda elde edilen Cronbach alfa katsayısı 0,95, alt boyutların Cronbach alfa katsayıları ise 0,88-0,94 ve 0,85 olarak ölçeğin güvenilir bir ölçme aracı olduğunu göstermektedir (Cronbach, 1951; Tavakol ve Dennick, 2011). Ölçeğin faktörleri arasındaki korelasyonlar anlamlı, orta ve yüksektir (p<0.01). Ölçek maddelerinin korelasyon katsayıları 0,39 ile 0,78 arasında değişmektedir. Bu bulgular literatürdeki diğer araştırmalarla birlikte değerlendirildiğinde ölçeğin güvenilirliğinin sağlandığı görülmüştür. Sonuç olarak, 26 maddeden oluşan 3 faktörlü Denizciler için Psikososyal Değerlendirme Ölçeğinin geçerli ve güvenilir bir ölçek olduğu sonucuna varılmıştır.

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1. INTRODUCTION

Although modern ships are cleaner, more reliable and more comfortable than ever before, there is a general consensus that seafaring is one of the most dangerous occupations in the world, and several studies have made the assertion that seafarers have one of the world's most hazardous jobs. As one study noted, "It has been established that seafaring is one of the most physically demanding professions in one of the most dangerous work environments: the sea" (as cited in Iversen, 2012). Furthermore, ships are a prime example of a working environment that is isolated from the rest of the world. The International Maritime Organization (IMO) declared 2010 to be "The Year of the Seafarer" with the aim of highlighting and raising awareness about the challenging work conditions of seafarers, which are not just limited to cramped spaces and the motion of ships (Mitropoulos, 2011). Seafaring has its own particular characteristics and is carried out in specific contexts from a psychosocial and physical perspective (Carotenuto et al., 2012).

Research has demonstrated that seafaring inherently involves numerous mental, physical and psychosocial stressors, and it has been found that those stressors are relatively more disruptive than those associated with land-based jobs. In other words, the work-related stress experienced by seafarers has specific characteristics that are often different from those faced by practioners of other occupations (Carotenuto et al., 2012). The living and working conditions of seafarers are further exacerbated by long-time separation from family and home for months at a time, and there are also the issues of increasing economic pressure and considerable to nearly extreme psychosocial problems (Rengamani & Murugan, 2012).

During the course of their work, seafarers may be exposed to a number of physical and psychological risks and hazards which can have a negative impact on their mental and physical well-being. Those risks can be characterized as objective and subjective factors. Subjective factors, which in this case are related to seafarers' self-evaluations of their own conditions, and objective factors, which are associated with the conditions under which work is carried out, can lead to accidents and other problems (Shultz D. P. & Shultz, S., 2002). Another challenge faced by seafarers is tedium. Chapman (1992) described the daily life of seafarers as being boring and routine. Work shifts are followed by time off, and that cycle is repeated for days, weeks and sometimes months on end. As a consequence of decreases in staffing, periods of uninteresting downtime may alternate with very long work shifts, especially on shorter voyages (Hafez, 1999).

While seafarers, who are generally male, hail from different countries around the world and hence can often speak multiple languages, in general they spend long periods of time at sea and so have little contact with life ashore and only intermittent communications with their families (Carotenuto et al., 2012; Sampson, 2013). Seafarers often live in cramped spaces that are subjected to substantial amounts of heat, vibration and noise. During voyages, not only do they have to deal with external

temperature fluctuations and the threat of piracy, they usually have to work long hours, bear the burden of weighty responsibilities and manage their duties despite a lack of sufficient sleep. It may be difficult to maintain a healthy diet and most ship managers have an authoritative leadership style.

Seafarers face other challenges as well such as a lack of treatment options for diseases that can be communicable. Fatigue, stress and isolation may also lead to heavy smoking and alcohol consumption, and all of these factors may have a negative impact on the physical and psychological wellness of seafarers, diminishing their overall well-being, quality of life and physical health (Iversen, 2012). Moreover, factors such as globalization of the shipping industry, developments in navigation techniques, expanded mechanization and computerization of work on ships, cuts in the numbers of crew members, multicultural crewing, increased uncertainty and short-term contracting have a definite influence on the well-being of seafarers (Slišković & Penezić, 2015).

Seafarers also must spend extended periods of time away from their families and social environments. Both seafarers and their families may face a wide variety of challenges in terms of coping with daily life. The absence of a seafaring spouse during long voyages that are sometimes intercontinental in scope may obligate the spouse at home to take on more responsibilities in terms of family life and caring for children. Seafaring may also lead to inadequacies and problems regarding the social relationships and interactions of seafarers (Tasdelen, Aksoy & Cakmak, 2016).

Several studies have indicated that in recent decades seafaring has become a less desirable occupation in developed countries (McLaughlin, 2012) and seafaring has come to be characterized as a challenging, stressful and high-risk profession that can have serious consequences for physical and psychological health. In light of research demonstrating that seafarers are a professional group who are under risk for stress and more vulnerable to experiencing psychological, psychosocial and physical problems, it is important to investigate and address the psychological and psychosocial health of seafarers. Several researchers have suggested that there is a pressing need to investigate the complex life and work situation of seafarers and calls have been made for further studies on the psychosocial aspects of seafarers' health (Doyle et al., 2016; MacLachlan et al., 2012; Oldenburg et al., 2013). Although some research has been done about the mental health of seafarers and psychological stress in seafarers' lives in a number of different countries (Iversen, 2012; Shi & Zhang, 2016), few such studies have been done in Turkey. The main purpose of this study is to develop a valid and reliable scale that evaluates the psychosocial problems of seafarers. Such a scale will be an important means of understanding the psychosocial problems experienced by seafarers in Turkey and it will also indicate potential areas of study for future research on the subject.

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2. METHOD

The key steps and processes that were involved in this scale development study are provided in the following sections.

2.1. Scale Development

Measurement is a fundamental tenet of science. We learn about people, objects, events, and processes by observing them, and making sense of these observations requires that we measure them frequently (DeVellis, 2016). Reliable and valid measures are the cornerstones of quality research in a wide variety of disciplines and fields of research (Noar, 2003).

In order to develop a psychosocial risk scale for seafarers, the researchers created a draft of a psychosocial problems assessment scale for seafarers, which consisted of 53 items, in light of previous research in the literature. Afterwards, validity and reliability analyses of the draft scale were carried out.

While validity is defined as the extent to which a concept is accurately measured in a study (Heale & Twycross, 2015), reliability is the extent to which measurements are error-free and give consistent results (Thanasegaran, 2009). Reliability has traditionally been considered a necessary but insufficient condition for validity in assessments (Moss, 1994). In order for a scale to make accurate measurements, it must display both validity and reliability (Ercan & Kan, 2004)

In this study, exploratory and confirmatory factor analyses were used within the scope of the validity studies of the scales and item analysis (total item correlation and Cronbach's alpha) within the framework of the reliability studies. The findings were then discussed in light of the existing literature.

2.2. Population

The universe of this study consists of members of the Turkish Seafarers' Union (N=5500). In the study, the sample size was determined by the non-clustered one-stage random probability sampling method based on population ratios (Collins, 1986). The sample size was calculated as 600 people with an acceptable error level of 4%, a confidence interval of 95% and a 50% probability of the event occurring in the main population. Taking into account the fact that there would likely be missing values in the survey, 735 people were asked to participate. Basic information about the participants is given in Table 1.

Table 1. Basic Information About the Participants

Demographic Variable	Groups	n	%
Gender	Female	48	6.5
	Male	687	93.5
Marital status	Married	505	68.7
	Single	230	31.3
Age (36.59±8.39)	30 years and below	199	27.1
	31-35 years	142	19.3
	36-40 years	155	21.1

	41-45 years	125	17.0
	46 years and above	114	15.5
Level of education	Primary school	58	7.9
	Secondary school	200	27.2
	High school	256	34.8
	University	221	30.1

2.3. Data Collection Tool

A questionnaire form consisting of two parts was used as the means of collecting data for the study. The first part of the data collection tool included a demographic information form that included questions about the participants' gender, age, marital status, number of children, level of education, income level, occupation, working periods at sea, the amount of time spent on their most recent voyage, and the total time spent at sea within a year.

The second part of the questionnaire form included a draft of the Psychosocial Problems Assessment Scale for Seafarers which was created by the researchers, the reliability/validity studies of which would be performed in the course of this study. The draft scale was designed as a 5-point Likert-type (1-never, 5-always) scale with 53 items.

2.4. Data Collection

The current study was approved by the Mehmet Akif Ersoy University Ethics Committee on 08/01/2020 and conducted during 30/01/2020-30/06/2020. Two research interviewers who were graduate students in social work were involved in the research, and prior to data collection the interviewers received training about interviewing skills and techniques. During the data collection, the interviewers visited various ports, companies and ships so that they could get in contact with potential participants. Instructions about how to respond to the measurements were provided above the scale. The participants filled out the data set voluntarily, and it took approximately 35 minutes for them to complete the scale.

2.5. Data Analysis

The data obtained within the scope of this research was checked by the researchers before it was analyzed. The programs SPSS 25 and AMOS 20 were used in the analysis of the data. The skewness coefficient was used in the normality test of the scale scores. The fact that the coefficient of skewness, which is used in the normal distribution feature of scores obtained from a continuous variable, was within the limits of ±1 can be interpreted to mean that the scores did not show a significant deviation from a normal distribution (Büyüköztürk, 2011).

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3. RESULTS

3.1. Results of the Exploratory Factor Analysis

With regard to the exploratory factor analysis of the draft of the Psychosocial Problems Assessment Scale for Seafarers which was to be carried out with 735 samples, since it was found that the KMO was 0.96 and the Bartlett's test of sphericity level of significance was p<0.01, it was deemed that the sample was sufficient for exploratory factor analysis.

When the scree plot was analyzed, it was observed that the slope rotated horizontally after the third factor and that a three-dimensional structuring of the scale was more appropriate (Figure 1).

Figure 1. Three-dimensional Structuring of The Scale
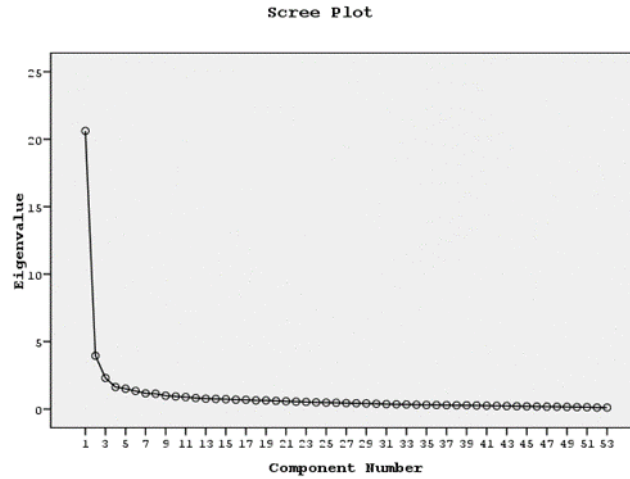
According to the first results obtained, the total variance explained by the 53 items in the scale was 50.68%. Per the first results of the exploratory factor analysis, items with a factor load below 0.40, items with a low factor load in the factor to which they belonged and a high factor load in other factors, and items in which the difference between factor loads was less than 0.10 were found. Those items were excluded from the exploratory factor analysis performed in the other stage (Henson & Roberts, 2006).

The results in Table 2 were obtained as a result of repeated varimax rotations done by gradually removing the relevant items.

Table 2. Results of the Exploratory Factor Analysis (Last Varimax)

Item	F1	F2	F3
20. I need expert support when I have a psychological or social problem.	0.15	0.49	0.10
41. I feel stressed and nervous when I am on a voyage.	0.19	0.59	0.30
46. I usually feel angry.	0.18	0.79	0.09
47. I usually feel lonely.	0.23	0.77	0.13
48. I usually feel anxious.	0.27	0.82	0.16
49. I usually feel desperate.	0.37	0.76	0.19
50. I have difficulty in adapting to life ashore after returning from a voyage.	0.26	0.65	0.16
51. I am afraid of becoming unemployed in the future.	0.16	0.62	0.15
2. I have good relationships with my nuclear family.	0.78	0.33	0.21

3. I have good relationships with my extended family and relatives.	0.73	0.21	0.23
4. I get along well with my friends.	0.77	0.33	0.23
5. I have good relationships with my colleagues.	0.76	0.32	0.25
6. I can deal with my family problems.	0.79	0.36	0.19
7. I can easily solve my problems with my extended family and relatives.	0.74	0.23	0.24
8. When I have problems with my friends, I can solve them.	0.75	0.33	0.27
9. I can easily solve problems with my colleagues.	0.72	0.32	0.30
10. I have a spouse/partner who supports me.	0.60	0.08	0.18
11. I have friends who support me around me.	0.63	0.18	0.31
14. There are other individuals who can deal with the problems of my family or relatives while I am on a voyage.	0.59	0.16	0.33
23. I think my superiors at work are fair.	0.19	0.28	0.51
30. A physical space (room) reserved to me is sufficient on the ship I work.	0.20	0.17	0.79
32. The opportunities available for my personal hygiene and self-care on the ship I work are sufficient.	0.27	0.22	0.80
33. My access to health services on the ship I work is sufficient.	0.32	0.22	0.67
34. I can meet my religious and spiritual needs on the ship.	0.36	0.06	0.58
37. I have opportunities to make use of my leisure time on the ship I work.	0.19	0.35	0.62
53. The lunch box, water, and meals are adequate and quality on the ship I work.	0.25	0.09	0.63
Eigenvalue	11.75	2.19	1.66
Variance (%)	25.31	19.32	15.39
Total Variance (%)	60.02		

According to the results of the last exploratory factor analysis obtained with the remaining 26 items (Table 2), it was determined that the total variance explained (60.02%) increased compared to the total variance explained by the 53-item structure (50.68%) in the first analysis. Per the results of the last exploratory factor analysis, it was determined that the remaining 26 items in the scale had high factor loads in the factors to which they belonged and low factor loads in other factors and that their factor loads were in the range of 0.49 and 0.82. It was determined that the variances explained by the factors were 25.31%-19.32% and 15.39%, respectively, and the total variance explained was 60.02%. According to the results of the exploratory factor analysis, 8 items (i20, 41, 46, 47, 48, 49, 50, 51), 12 items (i2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 14), and 7 items (i23, 30, 32, 33, 34, 37, 53) has been explored in the Psychosocial Problems Assessment Scale for Seafarers. The factors were named as follows, respectively: the "Psychological/Mental Problems" dimension, the "Problems Related to the Family and Environment" dimension and the "Problems Related to the Working Environment" dimension.

3.2. Confirmatory Factor Analysis Results of the Psychosocial Problems Assessment Scale for Seafarers

The fit index values obtained as a result of the confirmatory factor analysis performed with the 3-dimensional, 26-item structure of the Psychosocial Problems Assessment Scale for Seafarers determined by the exploratory factor analysis are presented in Table 3. According to the results of the first confirmatory factor analysis, the model fit indices were generally good (Table 3); however, it should be noted that the results in Table 3 were obtained by first establishing covariance connections suited to the modification proposals by estimating that all fit indices could be increased to a good fit level along with the covariance connection suited to the modification proposal.

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Table 3. Model Fit Indices of the Psychosocial Problems Assessment Scale for Seafarers

Model Fit Indices	DFA 26 items	DFA* 26 items	Fit Indices	Reference
X^2/sd	5.38	3.83	< 5	Tabachnick and Fidell, 2001
RMSEA	0.08	0.06	≤0.10	Kelloway, 1989; Tabachnick and Fidell, 2001
SRMR	0.05	0.04	≤0.08	Hu and Bentler, 1999; Brown, 2006
GFI	0.85	0.90	≥0.90	Kelloway, 1989; Schumacker and Lomax, 1996; Sümer, 2000; Hooper, Coughlan and Mullen, 2008
NFI	0.88	0.92	≥0.90	Kelloway, 1989; Schumacker and Lomax, 1996; Sümer, 2000; Tabachnick and Fidell, 2001 Thompson, 2004
NNFI	0.89	0.93	≥0.90	
CFI	0.90	0.94	≥0.90	Hu and Bentler, 1999; Sümer, 2000; Thompson, 2004
Factor load (min/max)	0.44 / 0.88	0.46 / 0.89		
Standard error (min/max)	0.04 / 0.14	0.05 / 0.14	0.05 – 0.45	Bollen, 1989
Correlation between factors (min/max)	0.56 / 0.69 / 0.69	0.56 / 0.68 / 0.69		

*with covariance connections

With the covariance connections suited to the modification proposals it was found that the model fit indices increased to acceptable levels, error variances were low, factor loads were high and the correlation coefficients between the factors were at acceptable levels (Table 3).

Figure 2. CFA Diagram of the Psychosocial Problems Assessment Scale for Seafarers
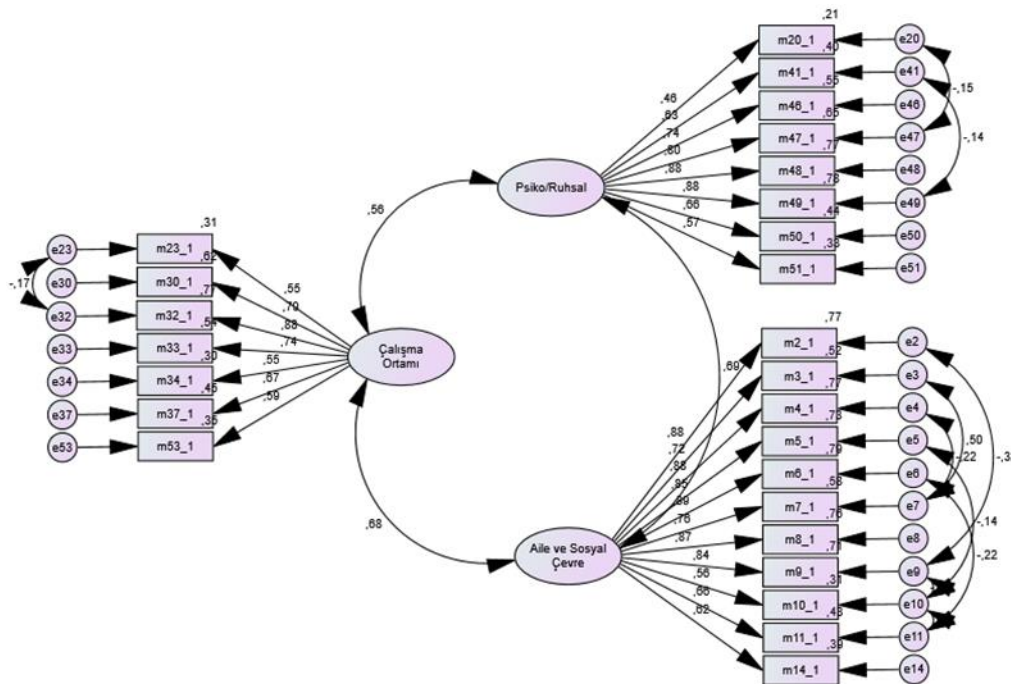
The descriptive statistics consisting of the mean and standard deviation and skewness data of the scale and its sub-dimensions are presented in Table 5.

3.3. Reliability Analysis

Cronbach's Alpha reliability coefficient and Pearson correlation coefficients were taken into account for the reliability analysis of the scale. Cronbach's alpha technique, which is a method used for item analysis, was utilized to examine the consistency between test scores. Cronbach's alpha shows internal consistency and is usually expected to be above 0.70 (Büyüköztürk, 2011). The Pearson correlation was used for the relationship between the scale and dimensions since it was found that the scale and sub-dimension scores showed a normal distribution in the normality test performed. The confidence interval was determined to be 95% (the significance level was 0.05 $p<0.05$) in the analyses.

Table 4. Item Analysis Results of the Psychosocial Problems Assessment Scale for Seafarers

Factor	Item	Std. β	t	r	α (0,95)
Psychological/Mental Problems	I20	0.46		0.39	
	I41	0.63	11.27**	0.57	
	I46	0.74	12.15**	0.57	
	I47	0.80	11.96**	0.62	0.88
	I48	0.88	12.88**	0.69	
	I49	0.88	12.89**	0.74	
	I50	0.66	11.57**	0.58	
	I51	0.57	10.79**	0.49	
Problems related to the Family and Environment	I2	0.88		0.78	
	I3	0.72	24.06**	0.68	
	I4	0.88	33.93**	0.78	
	I5	0.85	32.13**	0.78	
	I6	0.89	34.97**	0.79	
	I7	0.76	25.86**	0.70	0.94
	I8	0.87	33.39**	0.79	
	I9	0.84	27.26**	0.77	
	I10	0.56	16.74**	0.50	
	I11	0.66	20.78**	0.64	
	I14	0.62	19.32**	0.61	
Problems related to the Working Environment	I23	0.55		0.49	
	I30	0.79	14.61**	0.58	
	I32	0.88	14.86**	0.66	
	I33	0.74	14.14**	0.63	0.85
	I34	0.55	11.73**	0.45	
	I37	0.67	13.36**	0.58	
	I53	0.59	12.35**	0.49	

r: Total Item Correlation **p<0.01*

The item score correlation coefficients of the items in the Psychosocial Problems Assessment Scale for Seafarers were evaluated and it was found that the Correlation Reliability Coefficients between the scale items and the factors varied between 0.39 and 0.78.

According to the results of the item analysis in Table 5, it was determined that the Cronbach's alpha coefficient of the Psychosocial Problems Assessment Scale for Seafarers was 0.95, the Cronbach's alpha coefficients of the sub-dimensions were at the levels of 0.88–0.94 and 0.85, and the item-total correlation for all items in the scale was higher than 0.30 (in the range of 0.39 to 0.79) (Table 4).

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Table 5. Descriptive Statistics of the Scale

Scale and Sub-dimension	N	Min.	Max.	$\bar{\text{X}}$	SD	Skewness	1	2	3
1-Psychological/Mental	735	1.00	5.00	2.89	0.87	0.39	0.63**	0.52**	0.83**
2-Family and Social Environment	735	1.00	5.00	3.38	0.86	0.29		0.66**	0.92**
3-Working Environment	735	1.00	5.00	3.13	0.79	0.56			0.81**
4-PSYCHOSOCIAL PROBLEMS SCALE	735	1.19	4.96	3.16	0.73	0.49			1

*Correlation is significant at a level of 0.01 (2-tailed)

It was found that the total scores of the sub-dimensions of psychological/mental problems (2.89±0.87), problems related to the family and social environment (3.38 ± 0.86) and problems related to the working environment (3.13 ± 0.79) and the psychosocial problems scale (3.16±0.73) were moderate (Table 5). The correlations between the sub-dimensions of the scale were significant, moderate and high (p<0.01).

4. DISCUSSION AND CONCLUSION

In this study, the aim of which was to develop a Psychosocial Evaluation Scale for Seafarers, a 53-item draft was first created by the researchers based on information in the literature, and data was collected for those 53 items. The structure, which consisted of 26 items with 3 factors determined after the EFA, was reconsidered with CFA. Then reliability analyses were carried out.

Factor analysis was used to explain a large number of measured variables (survey items) in the research with a small number of underlying factors (latent variables) (Henson & Roberts, 2006). EFA helps reduce a large number of indicator variables to a limited range of factors based on correlations between the variables (Maskey et al., 2018). As a result of the EFA, a scree plot table was drawn up and evaluated, and it was decided that the scale consisted of 3 factors (Costello & Osborne, 2005).

In the first EFA with the draft scale items, overlapping items and items with a factor load of less than 0.40 were removed and the EFA was repeated. It was found that a scale consisting of 26 items and 3 factors explained 60.02% of the total variance. When the findings were evaluated together with information about AFA in the literature, it was determined that the factors and items obtained as a result of the EFA were valid (Costello & Osborne, 2005; Maskey et al., 2018; Tabachnick et al., 2007).

It was concluded that the fit indices obtained as a result of the CFA for the structure revealed by the EFA were within acceptable ranges. The scale was determined to be valid in its current form and reliability analyses were run. The Cronbach's alpha coefficient obtained as a result of the reliability analysis was 0.95, and the Cronbach's alpha coefficients of the sub-dimensions were 0.88-0.94 and 0.85, indicating that the scale is a reliable measurement tool (Cronbach, 1951; Tavakol & Dennick, 2011). The correlations between the scale's factors were significant, moderate and high (p<0.01). The correlation coefficients of the scale items ranged from 0.39 to 0.78. When these findings were evaluated

together with other research in the literature, it was found that the reliability of the scale was ensured (de Vet et al., 2017; Eisinga et al., 2013; Gliem & Gliem, 2003; Osburn, 2000; Yang & Green, 2011). As a result, it was concluded that a 3-factor Psychosocial Evaluation Scale for Seafarers consisting of 26 items is a valid and reliable scale.

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