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ORIGINAL ARTICLE

Examining trainees' success in Basic Offshore Safety Induction and Emergency Training (BOSIET) on the basis of their anxiety levels

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ABSTRACT

Background: *A descriptive study was designed to determine the relationship between the anxiety levels of offshore workers participating in the Basic Offshore Safety Induction and Emergency Training (BOSIET) and their success in the training and to examine the potential factors affecting anxiety.*

Materials and methods: *The trainees' state-anxiety values were determined using the State-Trait Anxiety Inventory (STAI) Form TX-1 before and after each exercise, and trait-anxiety values were determined using TX-2 after all exercises had been completed.*

Results: *Among 276 trainees, female (n = 17), non-swimmers (n = 22) and younger trainees (median age: 35 [32–41]) had higher state-anxiety levels. The most anxiety-provoking and the most unsuccessful parts of the training were helicopter escape, the use of Compressed Air Emergency Breathing System (CA-EBS), and sea survival, respectively. After the CA-EBS exercise, where failure was seen for the first time, the anxiety level of those who failed increased.*

Conclusions: *The post-exercise state-anxiety scores of the unsuccessful ones were higher than those of the successful ones.*

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Key words: Basic Offshore Safety Induction and Emergency Training (BOSIET), offshore workers, State-Trait Anxiety Inventory, anxiety levels, success rates

INTRODUCTION

The Oil and Gas Industry; employs a large number of employees called "offshore workers" in different roles at offshore assets such as the production platform, drilling rig, and Floating Production Storage and Offloading (FPSO) [1, 2]. Offshore workers face many risks such as fire and explosion [3, 4], toxic gases [5], and chemical hazards [6] due to the handling of dangerous goods every day in their jobs [7–9].

There are several different standard bodies, such as the Canadian Petroleum Manufacturers Association (CAPP), the Norwegian Petroleum Industry Association (OLF), and the most recognized Offshore Petroleum Industry Training Organization (OPITO), which are used to prepare personnel for offshore hazards [10]. In order to improve workforce safety and competence, OPITO has been setting standards for the oil and gas industry since 1991 [11, 12]. OPITO is a non-profit and industry-owned organization serving the needs of the Oil and Gas Industry [13, 14]. In accordance with OPITO standards, offshore workers are required to undertake the OPITO-approved Basic Offshore Safety Induction and Emergency Training (BOSIET) which should be renewed at least once every four years [15, 16].

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The BOSIET course consists of 4 training modules: Module 1: Safety Induction, Module 2: Helicopter Safety and Escape, Module 3: Sea Survival, and Module 4: Firefighting and Self Rescue [17]. Within these modules, the course provides 6 practical exercises to the participants: emergency First Aid (FA), basic knowledge of Fire Fighting and Self-Rescue (FFSR), Totally Enclosed Motor Propelled Survival Craft (TEMPSC) launching, emergency training with using Compressed Air Emergency Breathing System (CA-EBS), practical Helicopter Escape (HE) techniques, and Sea Survival (SS). To be considered successful in a BOSIET course, a trainee must successfully complete all the exercises provided in the course.

In order for practical exercise carried out in a simulated field to serve its purpose, in addition to the physical fidelity of the created area with the real environment [18–21], cognitive fidelity is also an essential requirement during skill acquisition [22]. Cognitive fidelity refers to the level of simulated replicating psychological and cognitive factors such as stress, anxiety, and fear that exist in the real-world system [23]. A high-fidelity training has provided a more confident workforce in dealing with real-world dangers, even though causes more anxiety on trainees [20, 21, 24–26].

In this context, the BOSIET course aims to ensure that the employees are prepared for the difficulties and emergencies that may be encountered by considering the risks and hazards of offshore life [27]. So that, the training activities in its content require practical exercises that may cause anxiety as well as the theoretical part. However, high levels of anxiety can be detrimental to health and may cause trainees to experience a dangerous situation such as falling, burning, injury, drowning, and stress-related panic attacks, which are among the risks involved in the exercises of the BOSIET course [18, 28, 29].

In the courses held in İTÜNOVA Teknoloji A.Ş. (İTÜNOVA), the only institution authorized to provide the OPITO-approved BOSIET course in Turkey, the significant increases in anxiety levels of some participants were observed just prior to the practical exercises, especially immediately before the CA-EBS and HE exercises.

To the best of our knowledge, no study in the literature has measured the anxiety level in an integrated occupational training that includes emergency response exercises as in the BOSIET course. For this reason, given the importance of the need to adjust the anxiety level balance well so that the course reaches its goals and the participants do not experience health problems, the objective of this study; is to examine the difference between trainees' success rates in practical exercises and their anxiety levels as well as to determine the most anxiety-provoking part of training. In addition, it was aimed to determine the difference between the pre-exercise S-anxiety and post-exercise S-anxiety scores of the participants in the study, to compare this difference with the success status, and to investigate the potential factors such as age and swimming, which affect the anxiety level.

It was therefore the intention of the study to be a guide to the trainers of the course and to contribute to the literature, and thus to conduct a comprehensive analysis to evaluate in more detail the effect of anxiety on success status of participants by evaluating the State-Trait Anxiety Inventory (STAI) subscales.

State-Trait Anxiety Inventory is an inventory developed by Spielberger in the 1970s to provide reliable, relatively short, self-report scales for assessing state and trait anxiety [30]. In the study, STAI TX-1 and STAI TX-2 forms were used to determine the state and trait anxiety levels of the trainees with the socio-demographic data form. In the statistical analysis of the data, the SPSS Statistics for Macintosh, Version 27.0 were used [31].

MATERIALS AND METHODS

A descriptive study was designed to determine the relationship between the anxiety levels of offshore workers participating in the BOSIET course and their success in the course and to examine the potential factors affecting anxiety.

The research was initiated after the necessary permissions had been obtained from İTÜNOVA, which hosts the OPITO-approved BOSIET course in Turkey, and the approval of the Galatasaray University Ethics Committee (no: 21/014). Before starting the course, the participants were informed about the purpose of the study, its implementation, voluntary participation, the ability to leave the study at any time, and confidentiality of information. Verbal and written consent was received from the participants who volunteered to participate in the study.

At the time period from April 2021 to August 2021, 276 trainees who received the OPITO-approved BOSIET training in Turkey participated in the study. The research was conducted on a total of 36 training groups. Each group consisted of 8 participants except for two groups that consisted of two participants.

The research data was collected by interviewing the participants face to face and as data collection tools a socio-demographic data form prepared by authors and Spielberg's STAI Form TX-1 and STAI Form TX-2 questionnaires were used.

At the beginning of each course, the voluntary participants completed the 12-question socio and anxiety related demographic data form. With the demographic data form, the participants' identification features were identified such as age, gender as well as their psychiatric and chronic diseases that can be associated with their anxiety levels. The names of the participants were not demanded

Table 1. The programme of the practical exercises in digital Basic Offshore Safety Induction And Emergency Training (BOSIET)

Time interval	Duration [min]	Subject of training	Exercise area	Exercise type
09.00–09.30	30	Knowledge Test	Classroom	Theoretical
09.30–10.20	50	Emergency FA	Classroom	Practical
10.30–12.25	105	FFSR	Firefighting training area	Practical
12.25–12.55	20	Evacuation with TEMPSC	TEMPSC area	Practical
12.55–13.25	30	Launch break	—	—
13.25–14.15	50	Helicopter emergencies	Training pool	Practical (dry)
14.15–14.45	30	Use of CA-EBS	Training pool	Practical (dry)
14.55–16.50	115	Practice with CA-EBS and HE	Training pool	Practical (wet)
16.50–18.10	80	SS techniques	Training pool	Practical (wet)

FA — First Aid; FFSR — Fire Fighting and Self Rescue; TEMPSC — Totally Enclosed Motor Propelled Survival Craft; CA-EBS — Compressed Air Emergency Breathing System; HE — Helicopter Escape; SS — Sea Survival

in the questionnaire to make them feel comfortable when answering the questions. However, in order to make a personal analysis of the participants in the evaluation phase, a personal number was given to each participant, and kept their knowledge confidential.

Each participant completed the STAI Form TX-1 to determine their state-anxiety level before and after each practical exercise and they completed the STAI Form TX-2 after completing all the training to determine trait-anxiety levels. Due to the continuation of the coronavirus disease 2019 (COVID-19) pandemic, the theoretical part of the training was held online, and all practical exercises were carried out face-to-face in a single day. The programme of the practical exercises, which was the subject of our study, is presented in Table 1.

In addition, the success status of the participants was obtained from the trainers. The trainers gave a second try to the trainees who were unsuccessful in the first attempt at any exercise. However, the evaluation of the participants' anxiety levels in these second trials was not made at the request of the trainers in order not to affect their motivation and was not included in the study.

State-Trait Anxiety Inventory is a scale developed by Spielberger in the 1970s to assess state and trait anxiety. It consists of two parts as "STAI Form TX-I" and "STAI Form TX-II", consisting of 20 items each [30, 32]. STAI Form TX-I measures state anxiety (S-anxiety) by asking participants about their feelings at a given time. TX-II aims to measure trait anxiety (T-anxiety) by asking participants about their feelings in general [33–35].

All items in the TX-1 and TX-2 forms are evaluated with 4-point Likert Scale. S-anxiety and T-anxiety are scored individually. There are ten reversed phrases in TX-I and seven in TX-II. The reversed phrases are scored as negative. The anxiety levels are determined by adding a constant value (of 50 for TX-1 and 35 for TX-2) to the score obtained by the TX-1 and TX-2 forms. As a result of this process, a value between 20 and 80 is obtained. Öner and le Compte [36], conducted the Turkish reliability and validity study of the STAI.

STATISTICAL ANALYSIS

In the statistical analysis, SPSS Statistics Version 27.0 for Macintosh was used [31]. The factor analyses and reliability statistics of STAI TX-1 and TX-2 was performed. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy, KMO and Bartlett's test, Total Variance Explained (%), and Cronbach's Alpha values were reviewed and confirmed their suitability for analysis. In determining the normality; the Skewness-Kurtosis values, Kolmogorov-Smirnov test (since the number of evaluated items was greater than 50), histogram and Q-Q plots graphs were examined. The normally distributed variables were presented as the average ± standard deviation, and non-normally distributed variables were presented as median (interquartile range [IQR]: Q1–Q3). The categorical data was expressed as number (%). In the comparison between the two groups, the Mann-Whitney U test was used for non-normally distributed variables, and the Independent Sample T test was used for normally distributed variables. In the comparison among three or more groups, the Kruskal-Wallis H test was used for non-normally distributed variables and to detect the relationship between subgroups in case of significant difference the post-hoc test was used. Since the variances were not homogeneously distributed at this stage, the Games-Howell test was used. The Wilcoxon test was applied in the analysis of two dependent variables. In comparison between non-normally distributed continuous data, the Spearman

Table 2. The difference between the S- and T-anxiety scores and gender, and ability to swim

	Pre-exercise S-anxiety scores	Post-exercise S-anxiety scores	After completing the course T-anxiety scores
Gender			
Female (n = 17)	26.50 (23.00–37.00)	26.00 (22.00–33.00)	38.06+ ± 5.49
Male (n = 259)	23.00 (21.00–35.00)	22.00 (21.00–23.00)	32.91 ± 5.07
P	0.00 < 0.001*	0.00 < 0.001*	0.00 < 0.001**
Able to swim			
Swimmer (n = 254)	23.00 (21.00–30.00)	22.00 (21.00–23.00)	32.63 ± 4.84
Non-swimmer (n = 22)	28.00 (34.00–38.00)	30.00 (25.00–33.00)	40.09 ± 4.76
P	0.00 < 0.001*	0.00 < 0.001*	0.00 < 0.001**

*Mann-Whitney U test for STAI TX-1 (S-anxiety)

**Independent Samples T test for STAI TX-2 (T-anxiety)

S-anxiety scores presented as median (q1–q3); T-anxiety scores presented as mean ± standard deviation. Statistically significant difference was performed at the 0.05 level.

correlation was used and to compare categorical variables chi-square test was used. A p value of < 0.05 was considered to be statistically significant.

RESULTS

Among 276 offshore workers participating in the study, 6.20% (n = 17) were female and 93.8% (n = 259) were male, and the median age was 35 (32–41) years. Ninety two per cent (n = 254) of the participants were swimmers, 8% (n = 22) non-swimmers.

According to the answers given by the participants to the questions in the socio-demographic data form, none of the trainees had a history of psychiatric illness, ongoing psychiatric illness, or phobias such as claustrophobia and aqua-phobia. None of the trainees had ever been in danger of drowning before. Only one trainee stated that he had a chronic disease. Therefore, none of these cases were used in the analysis.

The participants were evaluated in terms of their pre- and post-exercise S-anxiety scores as well as their T-anxiety scores, as shown in Table 2. On the basis of gender, female had higher anxiety levels than male in all categories (p [pre-exercise S-anxiety] = p [post-exercise S-anxiety] = p [T-anxiety] = 0.000), and on the basis of ability to swim, non-swimmers had significantly higher anxiety levels than swimmers in all categories (p [pre-exercise S-anxiety] = p [post-exercise S-anxiety] = p [T-anxiety] = 0.000).

The relationship between the pre- and post-exercise S-anxiety scores of the trainees and their age was analysed with the Spearman correlation. There was a significant, negative, very weak correlation between the pre-exercise S-anxiety scores of the trainees and their age (r = –0.059, p = 0.017). There was also a significant, negative, very weak correlation between the post-exercise S-anxiety scores and age (r = –0.070, p = 0.004). On the other hand, there was no statistically significant relationship between T-anxiety scores and participant age (r = 0.007, p > 0.05).

There was a significant difference between the pre-exercise S-anxiety scores and exercise type as shown in Table 3 (p = 0.000). When this difference was examined, it was seen that the most anxiety-provoking practical exercise on the trainees was HE, followed by CA-EBS, and SS, respectively. The pre-exercise S-anxiety scores of the trainees in TEMPSC, FFSR, and FA exercises were lower than in other exercises. The difference between pre-exercise S-anxiety scores for TEMPSC, FFSR, and FA is quite low, although statistically significant. There was a significant difference between the post-exercise S-anxiety scores and the exercise type (p = 0.001), but the S-anxiety values were close to each other.

When the difference between the pre- and post-exercise S-anxiety scores were examined and success status on the basis of the exercise type as shown in Table 4, there was no significant difference between the pre-exercise S-anxiety score of the trainees and their success for CA--EBS and HE exercises (p [CA-EBS] > 0.05, p [HE] > 0.05). Furthermore, there was no difference between the pre- and post-exercise S-anxiety scores of the trainees and their success for FA, FFSR, and TEMPSC exercises, since everyone is successful in these exercises. On the other hand, for the SS exercises, there was a significant difference between the success of the trainees and their pre-exercises S-anxiety scores (p = 0.042). In addition, for CA-EBS, HE, and SS exercises, significant differences were found between the success status and post-exercise S-anxiety scores (p [CA-EBS] = 0.000, p [HE] = 0.000, p [SS] = 0.032).

According to the course results, 89.5% (n = 247) of the trainees successfully passed all the exercises in

Table 3. Examining the difference between the S-anxiety scores before and after the exercises according to the success level on the basis of exercise type

Exercise groups	N	Pre-exercise	Post-exercise
		S-anxiety scores	S-anxiety scores
FA	276	22.00 (21.00–23.00)	22.00 (21.00–23.50)
FFSR	276	22.00 (21.00–23.00)	22.00 (21.00–23.00)
TEMPSC	276	22.00 (21.00–23.00)	22.00 (21.00–23.00)
CA-EBS	276	34.50 (22.00–38.00)	22.00 (21.00–24.00)
HE	276	40.00 (39.00–41.00)	22.00 (21.00–24.00)
SS	276	23.00 (22.00–25.00)	22.00 (22.00–24.00)
P*		< 0.05 (0.000)	< 0.05 (0.001)

FA — First Aid; FFSR — Fire Fighting and Self Rescue; TEMPSC — Totally Enclosed Motor Propelled Survival Craft; CA-EBS — Compressed Air Emergency Breathing System; HE — Helicopter Escape; SS — Sea Survival

*P was shown as significant difference at the 0.05 level with Kruskal Wallis test.

S-anxiety scores presented as median (q1–q3) due to nonparametric distribution.

Table 4. Examining the difference between the S-anxiety scores before and after the exercises and the success level on the basis of exercise type

Time	Success Status	CA-EBS		HE		SS	
		S-anxiety	P*	S-anxiety	P*	S-anxiety	P*
Pre-exercise	Passed	36.00 (22.00–38.00)	> 0.05	40.00 (39.00–41.00)	> 0.05	23.00 (22.00–24.00)	0.042
	Failed	30.00 (27.50–37.00)		38.50 (23.00–45.00)		31.50 (29.00–34.00)	
Post-exercise	Passed	22.00 (21.00–23.00)	0.000	22.00 (21.00–23.00)	0.000	22.00 (22.00–24.00)	0.032
	Failed	43.50 (42.50–47.50)		31.50 (22.00–44.50)		32.00 (29.00–35.00)	

*P was shown as significant difference at the 0.05 level with Mann-Whitney U test.

S-anxiety scores presented as median (q1–q3) due to nonparametric distribution.

Since everyone is successful from FA, FFSR, and TEMPSC exercises: "The Mann-Whitney Test cannot be performed on empty groups."

Abbreviations — see Table 3.

the course, while 10.5% (n = 29) failed at least one exercise. In order for a trainee to successfully complete the course, it is necessary to pass all the exercises. If the trainee fails even one of the six exercises, he/she is considered unsuccessful in the course. However, the fact that the trainee has failed in one of the exercises does not prevent his/her participation in other exercises. In Table 5, the differences between the pre- and post-exercise S-anxiety scores of successful and unsuccessful individuals for each exercise were given.

A statistically significant difference was found between the pre- and post-exercise S-anxiety scores of the successful ones in FA, FFSR and TEMPSC exercises (p [FA] = 0.008, p [FFSR] = 0.013, p [TEMPSC] = 0.000), but this difference was quite low. There was a significant difference between the pre- and post-exercise S-anxiety scores of the successful ones in CA-EBS, HE and SS exercises (for CA-EBS, HE, and SS, p = 0.000). There was a significant difference between the pre- and post-exercise S-anxiety scores of the unsuccessful ones in CA-EBS exercise (p = 0.012), for HE and SS the difference was not significant (p > 0.05).

DISCUSSION

This study attempted to assess anxiety levels and training success in trainees who participated in the BOSIET emergency response training at ITUNOVA.

In the study, age, gender and swimming knowledge of the trainees stood out as distinctive socio-demographic characteristics. In the gender and anxiety comparison of the trainees, the female's pre- and post-exercise S-anxiety scores and T-anxiety scores were higher. This result showed parallelism with several studies conducted among onshore workers [37–39]. However, although this comparison was statistically significant, only 6.20% (n = 17) of the participants were female. Therefore, this comparison should be re-evaluated by ensuring homogeneity between groups in a larger sample. Nevertheless, it can be said that the current sample reflects the reality due to the gender inequality in

Table 5. Examining the difference between the pre- and post-exercise S-anxiety scores of the successful and unsuccessful ones separately on the basis of the exercise type

Exercise groups	N	Pre-exercise S-anxiety scores	Post-exercise S-anxiety scores	P*
Successful ones				
FA	276	22.00 (21.00–23.00)	22.00 (21.00–23.50)	0.008
FFSR	276	22.00 (21.00–23.00)	22.00 (21.00–23.00)	0.013
TEMPSC	276	22.00 (21.00–23.00)	22.00 (21.00–23.00)	0.000
CA-EBS	268	36.00 (22.00–38.00)	22.00 (21.00–23.00)	0.000
HE	248	40.00 (39.00–41.00)	22.00 (21.00–23.00)	0.000
SS	274	23.00 (22.00–24.00)	22.00 (22.00–24.00)	0.000
Unsuccessful ones				
CA-EBS	8	30.00 (27.50–37.00)	43.50 (42.50–47.50)	0.012
HE	28	38.50 (23.00–45.00)	31.50 (22.00–44.50)	> 0.05
SS	2	31.50 (29.00–34.00)	32.00 (29.00–35.00)	> 0.05

*P was shown as significant difference at the 0.05 level.

Wilcoxon Signed Ranks Test.

Since all trainees were successful in FA, FFSR, and TEMPSC exercises: these exercise groups were not included in the table of unsuccessful ones.

Abbreviations — see Table 3.

the maritime and offshore sector, which is one of the male-dominated occupations today [40–43].

In the comparison between the trainees' ability to swim and their anxiety, the non-swimmers had higher anxiety scores than the swimmers. This was researchers' expectation as well [44, 45]. Because half of the practical exercises took place in the pool environment and this situation naturally caused a fear and higher anxiety in those who could not swim [46, 47].

A significant but very weak correlation was found in the relationship between age and anxiety of the trainees — as the age increased, the pre-exercise S-anxiety score decreased by 5.90% and the post-exercise anxiety score also decreased by 7.00%. This result was compatible with the fact that healthy older individuals can cope with difficulties more calmly with their knowledge and skills gained from their experiences [48–50]. As expected, the T-anxiety score, which reveals the general anxiety states of individuals independent of the exercises, did not have a significant relationship to age [51, 52]. However, these results should be understood taking into consideration the limitations. Although, the sample was a convenient sample and it may not be representative of the complete population. Therefore, the comparison of age and anxiety levels in this sample can't be generalised to alternative samples.

When comparing the pre-exercise S-anxiety scores of the trainees with the exercise types, the most anxiety-provoking part of the training for the trainees was found "Helicopter Escape (HE)" (40.00 [39.00–41.00]). In this exercise carried out in the training pool, trainees are expected to be able to escape the helicopter in case of an emergency landing/ditching in the water. In order for such a serious scenario to be carried out in accordance with its purpose, it was expected that the anxiety levels of the trainees will increase slightly, as the results of this research showed [53]. However, if this increase in the anxiety level of the trainees is not observed carefully by the trainers, it may cause unwanted accidents and injuries [18, 28, 29, 54], even if the necessary precautions are taken in accordance with the OPITO standards in the trainings.

The other exercise that caused the highest increase in the anxiety levels of the trainees after HE was CA-EBS (34.50 [22.00–38.00]). The aim of this exercise, which is carried out in the training pool like HE, is to enable the trainees to move consciously by breathing underwater with CA-EBS. This increase in the anxiety levels of the trainees in CA-EBS exercise was an expected result, since the exercise was carried out most part of it underwater and with an oxygen tube, which people are not used to in general [55, 56].

The next worrisome exercise, though not as much as HE and CA-EBS, was SS, which again took place in the pool and included survival techniques at sea based on individual and group performance (23.00 [22.00–25.00]).

Although the anxiety levels of the trainees in FA, FFSR and TEMPSC exercises were close to each other (22.00 [21.00–23.00]), they were considerably lower than HE and CA-EBS. The result was expected to be this way by the researchers since the trainees had to perform fewer challenges in these exercise types compared to other exercises in the pool.

Although the trainees who failed one of the exercises in the course were informed by the trainers that they would be deemed "unsuccessful" in the course results, they were free to move on to the next stage and each of the unsuccessful trainees attended the next stage. The rate of the trainees who failed at least one exercise in the course was 10.5% (n = 29). There were 8 (2.9%) trainees who failed in CA-EBS, 28 (10.1%) failed in HE and 2 (0.7%) failed in SS.

When the pre-exercise S-anxiety scores of those who passed the CA-EBS, HE, and SS exercises were compared with those who failed, a statistically significant result was found that only those who failed in the SS exercise had a higher anxiety (p = 0.042). However, since only two trainees failed in the SS, it was decided to ignore this result in the analysis. Therefore, the result was interpreted as that there was no significant difference between the pre-exercise S-anxiety levels of those who passed and failed in the exercise.

In the comparison of the post-exercise S-anxiety levels; the values of those who failed in the CA-EBS, HE and SS exercises were higher than those who passed (p [CA-EBS] = 0.000, p [HE] = 0.000, p [SS] = 0.032).

When the successful and unsuccessful ones on the basis of the exercises were compared separately, a decrease was found in the anxiety scores of the successful ones after the exercise in all types of the exercises. It was expected that the level of anxiety would decrease after the completion of the exercises [53, 57, 58].

However, in the evaluation of the unsuccessful ones, there was a significant difference between the anxiety scores of the trainees before and after the exercise only in CA-EBS, among the three exercises where the trainees were unsuccessful (p = 0.012). Contrary to what was expected, the anxiety level of the unsuccessful ones increased after CA-EBS exercise (pre-exercise S-anxiety score = 30.00 [27.50–37.00], pre-exercise S-anxiety score = 43.50 [42.50–47.50]). This opposite situation of those who failed in CA-EBS exercise was examined. According to the order of the exercises, CA-EBS was the first exercise failed by some trainees. It was believed by the researchers that the reason for this increase in anxiety after the CA-EBS exercise may be the fact that it was the first exercise where failure was seen, and that the trainees had to explain to their companies because they had failed. In addition, the fact that the trainees would re-join this course for the certificate of success they were obliged to receive, created both a time and financial burden for the trainees due to the relatively high cost of the course.

CONCLUSIONS

In our study, the focus was on the comparison of the anxiety levels of the trainees in the BOSIET emergency response training and their success in the course, which, as far as we know, is not included in the literature. The fact that the anxiety levels and success levels of the trainees before and after the exercises are compared in each of the 6 exercises in the course makes the study unique.

The participants' pre-exercise S-anxiety levels and their success status in the practical exercises was compared. Thus, the exercises could be ranked according to the level of anxiety in the trainees. Also, the difference between the success status of the trainees in each exercise and their post-exercise S-anxiety scores were presented. In addition, the difference between the trainees' sociodemographic characteristics and their anxiety levels were examined.

However, various limitations were encountered while carrying out the study: In the socio-demographic data form, all of the trainees answered "no" to the questions asked to learn about the psychiatric history, ongoing psychiatric diseases and phobias, which are among the factors that may affect anxiety. Also, only one of the trainees gave the answer "yes" to the chronic disease condition. For this reason, the comparison of these situations with anxiety could not be examined in the analyses in the study. Due to the uneven distribution of male and female, swimmers and non-swimmers, successful and unsuccessful rates in the sample, although statistically significant results were found in the comparisons, it was seen that a larger and more homogeneous data set was needed to strengthen the analysis. Another limitation was that the trainees who were unsuccessful in the first attempt were given a second chance by the trainers, but upon the request of the trainers, anxiety could not be detected in the second attempts of these trainees. For this reason, only the results of the first trial are included in the study.

The conclusions and recommendations presented according to the results of the study are as follows:

- Among the trainees, female, non-swimmers and younger trainees had higher S-anxiety levels;
- In this sample consisting of 276 people, the failure rate was 10.5%;
- There were only those who failed in the exercises performed in the training pool. All of the trainees were successful in the FA, FFSR and TEMPSC exercises held outside the pool. Failure rates were 2.9% (n = 8) for CA-EBS, 10.1% (n = 28) for HE, and 0.7% (n = 2) for SS;
- The anxiety level of those who successfully passed the exercises decreased significantly after each exercise;
- After the CA-EBS exercise, where failure was seen for the first time, the anxiety level of those who failed increased;
- The post-exercise S-anxiety scores of the unsuccessful ones were higher than the successful ones;

- The most worrying part of the course was the HE. As a matter of fact, the exercise with the highest unsuccessful rate of trainees was also HE. The order of the exercise types according to the anxiety level on the trainees is as follows: HE (40.00 [39.00–41.00]) > CA-EBS (34.50 [22.00–38.00]) > SS (23.00 [22.00–25.00]) > TEMPSC (22.00 [21.00–23.00]) > FFSR (22.00 [21.00–23.00]) > FA (22.00 [21.00–23.00]).

RECOMMENDATIONS FOR THE BOSIET COURSE TRAINERS

- Trainers should be trained on the causes and consequences of anxiety, coping with anxiety and how to help trainees suffering from anxiety.
- "Toolbox Talk" is the conversation in which the trainer gives information to the trainees about what they will encounter in the exercise, the purpose of the exercise and the safety measures taken for the exercise, before starting an exercise. In the "Toolbox Talks" especially held before the HE and CA-EBS exercises, where the anxiety level of the trainees is higher, there should also be speeches that reduce the anxiety level of the trainees and motivate the training.
- Anxiety levels should be reduced to as low as reasonably practicable through a continuous improvement process so that trainees do not experience any accidents and injuries in exercises.
- In this research, it was seen that the trainees were unsuccessful in the exercises that took place in the training pool (CA-EBS, HE and SS). More time should be given to the trainees in the first wet exercise in the pool so that the trainees can become familiar with the environment and equipment.
- In the first wet exercise in the pool, one-to-one training can be given, especially in the use of equipment such as CA-EBS. In this way, trainees with anxiety can gain familiarity with the pool environment and equipment without feeling the pressure of other trainees.
- More time should be given to the trainees during the first exercise in the pool environment where the helicopter simulator and the use of CA-EBS are introduced, where they are still dry. In this way, trainees can better concentrate on the escape points of the helicopter simulator, the push-out window, the seat belt and the CA-EBS equipment on them.

RECOMMENDATIONS FOR THE FUTURE RESEARCHERS

- Expanding the sample and ensuring homogeneity between the groups will contribute to the literature in terms of the comparability of the analysis results of similar studies.
- The analysis of anxiety levels in the second attempts of the trainees who failed in their first attempt, which could not be done in this study, can be done in future studies.
- The fact that all of the trainees answered no to all of the questions examining the psychiatric situation while the pandemic process, in which many people were negatively affected, is still continuing, aroused suspicion in researchers. The reasons behind giving no answers to these questions can be examined in the maritime and/or offshore sector.

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