Enhancing the Coping Skills of Submariners: An Evaluation of the Effectiveness of Skills Based Stress Management Training

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Declaration

I declare that this thesis is my own account of my research and contains as its main content work which has not previously been submitted for a degree at any tertiary educational institution.

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CHAPTER 2

METHOD

2.0 Design

A quasi-experimental design conducted in a natural field setting was used and an intervention project was conducted with primarily self-report measures to determine intervention effectiveness. The target sample for this study was operational submariners in the Royal Australian Navy based at HMAS Stirling. The sample group was drawn from four submarines (boats), and participants were assigned to an experimental or control condition according to which boat they were based on. Personnel on all four boats can be considered to be equivalent when viewed as a large group, given the specialist selection process for entry into Submarine Service, which covers personality aspects, aptitude, work performance and adjustment (Defence Instructions – Navy Personnel, 2005). Additionally, personnel are posted to boats based on their rank and category, as opposed to self-selection or Command preference. There are equivalent numbers of billets on each boat. Thus, it is argued that the posting itself serves as a simple random assignment of personnel, similar to what would be conducted in a between-subjects design. The boats that participated were conducting similar military exercises and were all from the COLLINS class. The skills training groups were facilitated by the author in the role of a Doctor of Psychology (Clinical) trainee and as a Psychologist at the base.

A meta-analytic study of treatment interventions indicated an effect size of .68 for cognitive behavioural interventions, and .51 for multimodal interventions (Van der Klink et al., 2001). Using Cohen's statistical power analysis at an 80% chance of detecting a significant difference with a one-way ANOVA, at an alpha level of .05, it

was determined that approximately 20 subjects would be required for the intervention phase (Cohen, 1992).

The exclusion criteria (Behavioural History) included meeting a diagnosis for attention deficit hyperactivity disorder, obsessive-compulsive disorder, and/or post-traumatic stress disorder. The latter was identified using ICD-10 criteria (American Psychiatric Press, 1994). This information was obtained at the pre-treatment testing phase, and was used to exclude subjects from participating in the skills training component of the program (only one subject was excluded on this basis).

Written approval was sought and granted from the Commodore of the Royal Australian Navy Submarine Squadron. Approval was also granted by the Australian Defence Force Human Research Ethics Committee (permit number 310/02) and the Murdoch University Human Research Ethics Committee (permit number 2002/301). To address ethical concerns, control groups were offered treatment on completion of testing. All personnel were invited to take part in the study, but participation remained voluntary. Subjects who were identified as at risk, but did not volunteer to participate in the skills training, were contacted regarding possible treatment options. Informed consent was obtained from all participants, which included access to use specific data from their psychology files for research purposes only. It was also indicated on the Information and Consent Form (Appendix A) that data from their medical files (number of sick days) would be required. However, following further discussions with medical staff it was agreed that this exercise would prove too difficult and thus this was eliminated as a requirement of the study, and all potential participants were informed of this prior to signing consent forms. Participants were

also provided with contact details for support options, other than the author, and were reminded of designated members onboard who they could approach should they experience distress whilst at sea. Subjects were informed of the confidentiality of information provided and that it was to be used for research purposes only. This was particularly important, as some members expressed their concern that participation may negatively impact on their careers.

This study involved two components for participation – (I) responses to questionnaires at different operational phases, and (II) a skills training program. There were four testing points: Baseline Sea, Baseline Alongside/Pre-Test, Post-Test, and Follow-Up (post-sea) measures. Below is an outline of the questionnaires included at each testing point (Table 2).

Table 2

Assessment Outcome Measures

Testing Points	Questionnaires
Baseline Sea	DASS, PSQ, SCCL
Baseline Alongside and Pre-Test	DASS, PSQ, SCCL Demographic Information, Your perceptions of your job (manpower & working hours, training & preparation, job demands, job satisfaction, overall job performance), Your views on being a submariner, Health & wellbeing, Number of sick bay attendances, ORQ, PRQ, Behavioural history
Post-Test	Job satisfaction, Job performance, Health & wellbeing, Number of sick bay attendances, ORQ, PRQ, PSQ, DASS
Follow-Up (Post-Sea)	Job satisfaction, Job performance, Health & wellbeing, Number of sick bay attendances, ORQ, PRQ, PSQ, DASS

Note. DASS – Depression, Anxiety and Stress Scales; PSQ – Personal Strain Questionnaire; SCCL – Stress and Coping Checklist; ORQ – Occupational Roles Questionnaire; PRQ – Personal Resources Questionnaire

The baseline (sea) measures were taken on the boat's return from sea, and responses were retrospective over the past two weeks. The baseline (alongside) measures were taken after a two week period alongside and responses were also retrospective. Pre-test measures were also completed at this testing point. Demographic information

was collected at each subjects' first testing point. The post-test measures were collected after a four week period alongside, and the follow-up post-sea measures were collected after the boat's return from a further stint at sea. Testing Point 1 required about 30 minutes to complete including instructions and gaining informed consent. Testing Point 2 required approximately 45 minutes – 1 hour. Testing Points 3 and 4 required about 20 minutes each. The questionnaires utilised at each testing point will be discussed in detail later in this chapter.

The skills training component of the study involved participation in a small group (maximum of six per group) program conducted twice weekly for a total of eight sessions. Sessions were 90 minutes long and were conducted at the Navy Psychology West section.

Follow-up was conducted after subjects had returned from a further period of time at sea, and measures were taken retrospectively on their return alongside.

2.1 Measures

To make comparisons with data obtained before the COLLINS class boats were fully operational, where possible direct replications of the assessment measures used by Brown (1999b) were utilised. Demographic data included gender, rank and category, age, education level, marital status, number of children, length of time served in the Navy, submariner status, length of time served as a submariner, and length of time in current posting. Perceptions of their job included level of job satisfaction, problems with the job, manpower and working hours, training and preparation, job demands and overall job performance. Their health and wellbeing, including number of self-

reported sick bay visits, was also measured, as well as their views on being a submariner. All the above measures (see Appendix B) were included in the pre-test assessment, and only job satisfaction, job performance, current health and sick bay visits, and general well being were included at the post-test and follow-up testing points. Psychological mental health screens currently used by the Navy for submariners were not incorporated in this study, as they were initiated after data collection procedures had already commenced.

2.1.1 Depression Anxiety Stress Scales

The Depression Anxiety and Stress Scales (DASS) (Appendix C) is a 42-item self-report instrument measuring the negative emotional states of depression, anxiety and stress. It was designed to assess the severity of the core symptoms of these three emotional states (Lovibond & Lovibond, 1995a).

Each of the three scales contains 14 items divided into subscales. Items on the Depression scale assess dysphoria, hopelessness, devaluation of life, self-deprecation, lack of interest/involvement, anhedonia, and inertia. Items on the Anxiety scale assess autonomic arousal, skeletal muscle effects, situational anxiety and subjective experience of anxious affect. Finally the Stress scale items assess difficulty relaxing, nervous arousal and being easily upset/agitated, irritable/over-reactive and impatient. This scale is sensitive to levels of chronic non-specific arousal. The DASS emphasise states rather than traits (Lovibond & Lovibond, 1995a).

The DASS is useful for clinicians and researchers measuring current state or change in state over time on the three dimensions. Non-clinical samples were used in the development of the DASS, thus making it suitable for screening normal adolescents and adults. In clinical settings its principal use is to clarify the locus of emotional disturbance, as part of a broader clinical examination (Lovibond & Lovibond, 1995a).

The DASS is self-administered. Instructions are provided at the top of the form and ask the client to evaluate the extent to which each of the symptoms has applied to him/her over the "past week". Items are rated on a 4-point scale: "did not apply to me at all" (0), applied to me to some degree, or some of the time" (1), "applied to me a considerable degree, or a good part of the time" (2), and "applied to me very much, or most of the time" (3). The DASS takes about 5 to 10 minutes to complete (Lovibond & Lovibond, 1995a).

Internal consistency coefficients for each scale in the normative scale are: Depression .91, Anxiety .84 and Stress .90 (Lovibond & Lovibond, 1995a). Brown, Chorpita, Korotitsch & Barlow (1997) evaluated the psychometric properties of the DASS in two studies using clinical samples. The first study consisted of 437 patients categorised into six diagnostic groups. Internal consistency was quite high for the entire sample (Depression .96; Anxiety .89; and Stress .93). For each principal diagnostic group, coefficients ranged from .91 to .96 (Depression), .88 to .89 (Anxiety) and .88 to 0.94 (Stress). These coefficients suggest high internal consistency.

Twenty randomly selected patients were readministered the DASS after two weeks. Test-retest correlations ranged from r=.71 to .81, $p<.001$ and indicate favourable temporal stability. Lovibond (1998) administered the DASS to 3540 participants, and then three to eight years later readministered the DASS to 882 of these participants. Test-retest correlations were positive and significant ($p<.001$) for each of the scales (Depression=.29; Anxiety=.41; Stress=.39). Each scale at retest was best predicted by the same scale at Time 1. These results support the longitudinal stability of the three scale scores.

Data on the findings of comparisons between the DASS with the BDI and the BAI show that DASS-Anxiety correlates highly (r=.81) with the BAI, as would be expected given the item overlap of the two scales. Furthermore as expected the two depression scales correlated less well (r=.74) (Lovibond & Lovibond, 1995b).

Principal components analysis was conducted on each set of scales to compare the degree of discrimination between the DASS scales. For the DASS scales the correlations between factors were: Depression – Anxiety r=.42; Anxiety – Stress r=.46; Depression – Stress r=.39. There was a moderate to strong loading from most items on the Depression and Anxiety scales on the appropriate factor. There was overlap between loadings for the Anxiety and Stress scales due to one item on the Anxiety scale and two on the stress scale. Depression and Stress items clearly loaded separately on their appropriate factors.

Lovibond & Lovibond (1995a) argue that the moderately high intercorrelations between the scales is not a result of the scales measuring overlapping constructs, but

rather a reflection of common causes of depression, anxiety and stress. They suggest that further research is required to identify such common factors.

2.1.2 Occupational Stress Inventory – Revised (OSI-R)

An individual's perceived levels of situation strain, personal coping resources (Cohen, Kessler & Gordon, 1997), and level of social support (Avison & Gotlib, 1994) appear to be better predictors of the level of stress than the objectively measured strain, coping resources and social support. Therefore it is argued that self-report of strain, level of stress, and perceived level of coping would be a valid representation of actual levels.

Hence work stress and adjustment was measured using the Occupational Stress Inventory – Revised edition (OSI-R) (Osipow, 1998) (Appendix D). The OSI-R measures the domains of occupational stress, psychological strain and coping resources. The OSI-R can be used to identify major sources of stress and strain symptoms, and can be used to measure treatment effects of programs/interventions aimed at reducing stress and strain, particularly the PSQ and PRQ scales. There are 14 subscales over the three domains, which are designed to measure specific individual and environmental characteristics of occupational adjustment.

The ORQ is comprised of six scales measuring occupational stress, the PSQ consists of four scales measuring strain in the workplace and other settings, and coping resources is measured by the four scales of the PRQ. The three domains and the subscales are outlined in Table 3.

Table 3

OSI-R Domains and Subscales

ORQ	PSQ	PRQ
Role Overload	Vocational Strain	Recreation
Role Insufficiency	Psychological Strain	Self-Care
Role Ambiguity	Interpersonal Strain	Social Support
Role Boundary	Physical Strain	Rational/Cognitive Coping
Responsibility		
Physical Environment		

Each scale consists of 10 items. Scores at or above 70T on the ORQ and/or PSQ indicate the strong probability of maladaptive stress and/or debilitating strain. 60-69T represents mild levels of stress and strain, 40-59T is considered within the normal range, and scores below 40T suggest relative absence of stress or strain. High scores on the PRQ are preferable with scores at or above 60T indicating strong coping resources. Average coping resources are indicated by a score within 40-59T, 30-39T indicate mild deficits, and scores below 30T suggest a significant lack of coping resources.

The OSI-R has been standardised for use with individuals over 18 years of age. The standardisation sample consisted of 983 participants. The mean age of the sample was 36.3 years, with 63% of participants being male, and 53% of the sample was married. The occupational groups included were categorised as executive professional, technical, marketing, administrative support, public service/safety (which included military), and agricultural/production/labourer.

Internal consistency was reported as .88 for ORQ, .93 for PSQ, and .89 for PRQ with alpha coefficients for the individual scales ranging from .70 to .89. Test-retest

reliability was reported as .61, .74 and .60 for the ORQ, PSQ, and PRQ respectively over a two-week period, significant at the .01 level. For the individual scales test-retest correlations ranged from .34 (Self-Care) to .71 (Rational Coping), with all but two correlations above .50.

Factor analyses showed the ORQ and PRQ scales loaded on the expected factors, but that the psychological strain and interpersonal strain scales may be tapping into similar strain features. Osipow (1998) reported moderate to strong support of the concurrent validity of the OSI-R from correlational and multivariate studies demonstrating the relationship between stress, strain, and coping.

2.1.3 Stress and Coping Checklist (SCCL)

The Stress and Coping Checklist (Appendix E) was compiled from factors linked to work stress in the general population (Beehr, 1995; Cooper & Marshall, 1978; Greenberg & Baron, 1995; Grunfeld et al., 2000; Johns, 1995; Rice, 1999; Solomon, 1999), as well as those identified as potential stressors associated with Submarine Service (Brown, 1999b; Earls, 1969; Moes et al., 1996; Suedfeld & Steel, 2000). It was used to measure the perceived stress level of each factor and the person's perceived level of coping with each factor. Noting that stress can be experienced as positive (challenge) or negative (threat) (Cavanaugh et al., 2000; Lazarus & Folkman, 1984), participants also rated whether or not they perceived each issue addressed in the questionnaire to be a problem. Subjects provided ratings for stress and coping on a 0-10 scale and responded 'yes' or 'no' for each item, at sea and alongside. This questionnaire was used to gain qualitative information that was used during the intervention training to identify 'priority problems' for the participants to

work on. As this was exploratory in nature, it will not be reported on in this study, though the findings are included in Appendix F (Tables F1 – F14).

2.1.4 Visual Analogue Scale (VAS)

Relaxation was measured using a self-report 10cm visual analogue scale with descriptors of relaxation and tension. Subjects were asked to place a mark on the line to indicate their current level of relaxation from 'deeply and completely relaxed' to 'tense and upset'. Subjects completed the VAS (in their Workbooks) before and after the relaxation training conducted in session. The scale is based upon Schilling & Poppen's (1983) research.

2.2 Recruitment Procedure

The Submarine Squadron holds a Force Element Group Forum each year. The study was first indicated to Navy submariners by the Commodore at the Forum in December 2002 at which time fliers were distributed. The flier was approved by the Australian Defence Force Human Research Ethics Committee and is included in Appendix G. In the New Year, each of the COLLINS Class Commanding Officers was personally contacted and the study and its requirements were discussed. Information forms were also distributed to each crew member and volunteers were recruited by an Officer on each boat. Information and Consent forms were signed and returned at the first information and baseline assessment session. This was conducted after the boat’s return alongside. The study and its aims were explained to participants at this first session and opportunities for questions provided. Participants were also provided information regarding the duration of each phase, likelihood of when each testing point would be conducted, where (on the boat), and

when and where the skills training phase would be undertaken. Any risks of the study and confidentiality issues were also highlighted and participants were provided with a copy of the Guidelines for Being a Volunteer provided by the Australian Defence Force Human Research Ethics Committee (Appendix H). A tear-off cover page was included with the baseline measures for which participants provided some personal details and contact information, as well as indicating which phase of the study they wished to participate in.

Despite efforts to increase exposure of the study, and great encouragement from the Commodore, and the Commanding Officers of each boat to participate, there were still some difficulties in recruiting subjects. Self-reports from some submariners indicated that they had been inundated with questionnaires and surveys over the years and they reported minimal feedback or benefits from participating. Some previous studies were also regarded as being quite intrusive in the workplace, resulting in frustration for some members and resentment towards psychology. Noting this, subjects were informed that they could request individual feedback if desired and that a report of the findings would be issued at the conclusion of the study. Progress letters were also sent to subjects throughout the course of the study.

There is evidence that survey response rates, both civilian and military, have significantly declined over the years, from as high as 60% to as low as 30% (Baruch, 1999; Edwards, Rosenfeld, Booth-Kewley & Thomas, 1996; Rogelberg, Luong, Sederburg & Cristol, 2000). A very recent empirical study of US naval personnel identified the primary reasons for non response as the belief that surveys resulted in no impact/changes, apathy, surveys being too lengthy and time consuming, being too

busy and surveys having a low priority, and being overburdened by surveys (Newell, Rosenfeld, Harris & Hindelang, 2004). The top suggestions by these US navy personnel for improving response rates included the provision of feedback and publishing results, Command involvement, short concise surveys, providing incentives and surveying online. Subjects participating in this study were provided with feedback, and were given opportunities for individual feedback, and were told about intentions to publish results. However, as the initial commencement of this project was in 2003, the other suggestions were not considered at the time of developing the surveys and during the recruitment process.

Although the response rate of this study is consistent with other military surveys, these suggestions should be taken into consideration for any future research with naval personnel. Another recruitment difficulty arose when subjects were posted off the boat during the course of the data collection, resulting in reduced numbers at each testing point. Additionally, some members who volunteered for the skills training component were later unable to participate due to being posted interstate. The study was also competing against naval prerequisite courses, and/or periods of leave.

2.3 Experimental Procedure

2.3.1 Participants

All operational submariners (*N*=238) were invited to take part in the study. There was an overall response rate of 32.8%, which yielded a total sample of 78 participants, 75 males and 3 females. All participants returned signed consent forms. A total of 38 personnel volunteered to participate in the skills training program. One subject who volunteered for the training program met the exclusion criteria. This

was discussed with the subject and it was agreed that this person would not participate in the group program. One subject withdrew from the group program after Session 2 due to course posting. Another subject withdrew after Session 4 because of personal reasons, and withdrew from Submarine Service. Nine subjects from the study withdrew due to posting changes and/or leave periods. Two subjects withdrew due to ongoing medical problems. Command of one of the control boats, which had agreed to participate, withdrew the volunteer status of those who opted to participate in the skills training program (*n*=8) due to unforeseen changes in the boat's program. All nominated personnel were personally contacted by the author and alternate treatment options were offered. All subjects who withdrew or met exclusion criteria were offered alternate treatment options but declined. A total of 16 subjects completed the skills training program.

All questionnaires were returned in a blank envelope to the author and results obtained from this study were kept secured within the Navy Psychology West section.

The facilitator was present during each of the testing points to provide participants with opportunities to check understanding of what was required of them. For those subjects participating in the skills training, the previous session and homework tasks to be completed were reviewed at the beginning of each session to encourage completion of tasks and address any obstacles to completion. Similarly, regular progress checks of subjects' Personal Questionnaire items (included in Workbooks) were conducted, and subjects were asked to consider what factors might have been

contributing to or hindering their progress. For example, if they were experiencing high levels of tension, relaxation home practice was reviewed.

2.4 The Submariner Health and Wellness Program

The program consisted of a detailed instruction manual (Appendix I) for the group facilitator, a participant manual (Appendix J), a participant workbook (Appendix K), and a relaxation tape. Weekly tasks were set in the workbook.

2.4.1 Program Materials

Each participant received a Manual and Workbook that contained detailed information about the program and each of its components. The Workbook contained monitoring sheets to be completed by the participants throughout the program.

Participants received an audiocassette tape of the paced diaphragmatic breathing relaxation script (Appendix L). The script has a running time of approximately 15 minutes.

2.4.2 Program Outline

SESSION NO: 1 **Educational component**	▪ Program outline ▪ Concept of stress; cumulative stress and strain ▪ Common signs and symptoms of stress ▪ Stress and performance ▪ Coping resources ▪ Common factors leading to work stress ▪ Concept of controllability and predictability ▪ Identification of personally relevant problems ▪ Identify Personal Questionnaire items
SESSION NO: 2 **Problem-solving phase & relaxation training**	▪ Identify nominated problems ▪ Complete example of monitoring sheet (Learning to Cope with Stress); aim for realistic drop on SUDS and 8 out of 10 for perceived coping ▪ Determine what action the person can take

	within their power ▪ Work on one example for each person and identify alternative strategies ▪ Introduce relaxation component ▪ Teach paced diaphragmatic breathing; record on VAS ▪ Provide relaxation tape for daily practice
SESSION NO: 3 **Cognitive skills phase**	▪ Review monitoring sheets ▪ Introduce cognitive processing biases and discuss in relation to personally relevant problems ▪ Develop alternative soothing interpretations ▪ Do example for each group member
SESSION NO: 4 **Session 3 & breathing with on-the-spot stress**	▪ Review monitoring ▪ Review Personal Questionnaire items
SESSION NO: 5 **Unsolvable problems**	▪ Review relaxation and discuss using with on-the-spot stress ▪ Discuss the BRAC cycle and identify activities to be used to stimulate parasympathetic activity ▪ Discuss unsolvable problems and identify distraction techniques and compensatory activities to be used ▪ Record effectiveness of compensatory activities on Compensatory Activity Worksheet
SESSION NO: 6 **Review skills**	▪ Review use of breathing in the face of stress ▪ Review effectiveness of BRAC activities ▪ Review effectiveness of compensatory activities ▪ Review progress with priority problems and discuss any new problems being tackled
SESSION NO: 7 **Review skills**	▪ Same as Session No. 6
SESSION NO: 8 **Review and relapse prevention**	▪ Review progress and strategies covered ▪ Discuss ways they will remember to self-care ▪ Discuss continued monitoring of priority problems until they achieve competence

Session 1

The purpose of session 1 was to introduce the program, build group cohesion, identify the requirements of participation and provide education about the concept of stress. The aims of the program were highlighted, and the ground rules were determined, which included:

1 Maintain confidentiality

2 Respect for each group member

3 No rank

It was explained to participants that the author's role was largely as a facilitator and that their role was an active one aimed at helping each other.

The concept of stress was introduced and the following issues were discussed:

1 What is stress?

2 Factors that influence the stress appraisal process.

3 Fight/flight response and General Adaptation Syndrome.

4 Stress and Performance; Positive Combat stress behaviours.

5 Common signs and symptoms of stress with a focus on participants identifying their signs and symptoms of stress.

6 The concept of controllability and predictability in relation to solvable and unsolvable problems.

Participants were asked to identify their Priority Problems. They were supplied with a copy of their own responses to the Stress and Coping Checklist to assist them in identifying these. They were to then identify whether or not each problem was solvable or unsolvable. Participants were asked to choose 2 or 3 solvable problems that they would like to work on, to be discussed in Session 2. In Session 1, participants also identified and rated their Personal Questionnaire (PQ) items (based on Barkham, Stiles & Shapiro, 1993), which were to be problems salient to them that they would like to improve over the course of the program.

Session 2

The aim of the second session was to work on a solvable priority problem for each group member. Participants were asked to try to choose problems they rated as a 6 or more out of 10 on the subjective units of distress scale (SUDS). The group

worked together to identify problem-focussed strategies that the participant could attempt. In deciding on alternative strategies they were asked to consider the following issues:

1 Is the action worth the effort?

2 How might others react to this behaviour?

3 How would using this new strategy make them feel about themselves?

4 Does this strategy fit with their sense of self?

These were recorded on the Learning to Cope with Stress Worksheets in their Workbooks. Completing the monitoring sheets was demonstrated for each group member. Participants gave a SUDS rating for each problem and were asked to identify a realistic reduction in their SUDS rating for that problem that they would attempt to achieve. The participants were asked to continue to work on this problem until they reached that goal, and they achieved a perceived coping score of 8 out of 10.

The second component of the session consisted of relaxation training. Participants were asked to record their current level of relaxation on a 10cm VAS. Ratings were recorded before and after the relaxation exercise. These ratings were analysed to assess the effectiveness of the exercise. The intervention subjects experienced a significant reduction in their tension levels from before the relaxation exercise (M = 4.67, *SD* = 1.44) to after the exercise (M = 1.98, *SD* = 0.92) [t (15) = 7.67, $p<.05$]. This shows that the relaxation exercise was effective in reducing the subjective tension levels of participants in the skills training.

They also rated their anxiety level on the SUDS in the Record of Relaxation Practice table in their Workbook. The participant's breathing rate per minute was recorded, and blood pressure and pulse rate were recorded using Blood Pressure Monitors. Participants were provided with pillows and were asked to place themselves in a relaxed position on the floor using the pillow to support their head. Prior to commencement of the relaxation script, participants were observed for a minute each using the Behavioural Relaxation Scale (BRS) (Poppen, 1988). Observations were recorded on the BRS score sheet (Appendix M). The relaxation script focuses on diaphragmatic breathing and relaxing different muscle areas of the body on exhalation. At the end of the relaxation training, participants were observed for a minute each using the BRS. Directly following the training, participants were asked to record their level of relaxation on a second VAS. They also recorded their anxiety level, breathing rate, blood pressure, and pulse rate. A taped copy of the relaxation script was given to each group member and it was recommended they practice daily throughout the program to gain the most benefit. Participants were required to record their anxiety before and after each relaxation practice.

Session 3

The aim of this session was to identify cognitive processing biases in relation to participants' priority problems, and identify alternative soothing interpretations. The session also allowed for reviewing relaxation practice and strategies for managing problems identified in Session 2.

Common cognitive processing biases were discussed such as mind-reading, personalising, catastrophising, and focussing on the negatives. These were linked to

their emotions and sensations. Noting how others react was important in most of the cases, as it enabled the person to gain a more realistic perspective of how they are perceived, and which actions were effective. Additionally, as group members were from the same boat, they were able to provide constructive feedback about, for example, their performance or how they are perceived. A priority problem for each group member was discussed as a whole, with the focus being on identifying the cognitive processing bias. Following this, the group worked together to identify possible alternative soothing interpretations with the individual deciding on his own soothing interpretation. These were recorded on their problem monitoring sheet. Participants were encouraged to combine their problem-focussed strategies with soothing interpretations. Participants were reminded to continue with their weekly recordings and they rated their Personal Questionnaire items.

Session 4

The aim of this session was to continue to work on the cognitive processing biases, evaluate the strategies used to date, and discuss how to use diaphragmatic breathing with on-the-spot stress.

Any new priority problems were discussed, and cognitive processing biases were identified along with alternative soothing interpretations. The concept of using 10 to 12 paced diaphragmatic breaths in the face of stress was discussed. This was related back to stress reactions and being able to reduce arousal to think more clearly and thus problem solve in a more effective way. Participants were encouraged to recognise that the aim of using the breathing was as a technique to manage their anxiety/arousal level and maintain an internal sense of control to deal with the

problem. Examples for when this could be used were identified. Progress with managing their Personal Questionnaire items was discussed. Participants were asked to comment on how they thought they were improving. Any items that were not improving were discussed within the group and strategies to address these were identified. Participants were reminded to continue their weekly recordings.

Session 5

The aim of Session 5 was to identify unsolvable problems and techniques to address these. The Basic-Rest-Activity-Cycle (BRAC) was also introduced. The idea of unsolvable problems was discussed in relation to the participant's degree of control over the problem. Emphasis was placed on distinguishing between what is solvable and what is unsolvable and that different techniques are used for each. Distraction techniques, that is, those activities involving verbal or written output (e.g singing along to music, talking to someone not about the problem, writing or reading something else) were discussed. These were to be applied in the face of the stressor. Participants were asked to try these techniques over the week. After the stressor has occurred and/or at the end of a rough day, participants were asked to engage in activities with compensatory value. These were to be activities that make them feel good about themselves, and ones in which they feel purposeful, competent and efficient. Examples of such activities included exercise, cooking, writing music or a story, watching movies, reading, and playing games. Participants were asked to schedule some of these activities for the remainder of the program and rate the effectiveness of each activity before and after the stress on a 0 to 10 SUDS. Participants were encouraged to identify activities they could engage in both alongside and at sea.

The BRAC cycle was discussed in terms of producing a relaxation response and increasing productivity and efficiency in their performance. Participants were instructed to take a 10-15 minute break after 90-120 minutes of productive work during which time they engaged in activities that promoted relaxation e.g. stretching, breathing exercises, looking at pictures, hand massage. Participants were encouraged to avoid stimulants during their breaks. For some subjects, this strategy could prove difficult in that they may be required to work for an extended period of time depending on their role onboard. In these cases, more creative and resourceful ways to implement the BRAC were identified with these subjects within the constraints of their role at the time. Reminders of weekly tasks were given.

Session 6 and 7

The aim of both of these sessions was to review progress with each of the techniques and discuss any new problems being tackled. The progress of their Personal Questionnaire items was also reviewed. Participants also discussed any changes in their behaviours and attitude as a result of the programme.

Session 8

This was the final session with the aim being to review the entire program focussing on what the participants learnt for themselves and discuss relapse prevention/setbacks. Each component was briefly revisited and participants were reminded of what they needed to do in order to maintain their gains. A program evaluation (Appendix N) was also conducted, with each group member identifying the most effective component for themselves and why, and the least effective component and why. Participants were also asked what changes they would make to

the program to better suit the needs of submariners and how they believed the program could be better incorporated into the boats' programs. Participants were asked to continue to monitor their priority problems until they achieved competence and that they could tackle any new problems that may arise whilst at sea and record these on their monitoring sheets.

2.5 Post-Test Session

Participants were asked to complete a survey to determine the impact of the training. Those volunteers who had not participated in the skills training program were administered the post-test survey to determine any changes over a period of time alongside. Participants were then informed of the final survey to be completed at the end of the upcoming sea time. This was the same questionnaire as that in the post-test.