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 7

STUDY 3

7.0 Baseline Measures

7.1 Introduction

Operational submariners work both at sea and when the boat is alongside. Their roles can vary when coming alongside and the types of demands they encounter can differ. Usually when a sea-going vessel is alongside the workload and tempo is not as intense and there are more opportunities for respite. Therefore it was decided to obtain baseline measures, which would reflect work and individual outcomes both at sea and alongside.

7.2 Data Collection

Baseline measures included the Depression Anxiety and Stress Scales (DASS) and the Personal Strain Questionnaire (PSQ). Responses were retrospective over the past two weeks. Baseline Sea measures were conducted when the boats first pulled alongside. Baseline Alongside measures were completed following a two-week period alongside.

7.3 Data Analysis

7.3.1 Depression Anxiety Stress Scales (DASS); Personal Strain Questionnaire (PSQ)

Self-report baseline ratings were compared at sea and alongside for all subjects. Table 21 shows the mean values, standard deviations and t-tests for the DASS and PSQ at both measurement points.

Table 21

Descriptive Findings for Symptoms Recorded at Sea and Alongside (*n*=46)

Measure	Baseline Sea Mean (*SD*)	Baseline Alongside Mean (*SD*)	T-Tests
DASS			
Depression	5.93 (5.77)	4.56 (5.00)	1.96
Anxiety	4.13 (5.49)	2.50 (3.36)	3.21**
Stress	9.78 (8.30)	7.85 (7.53)	2.30*
PSQ			
Vocational Strain	19.32 (4.68)	20.76 (5.61)	-1.84
Psychological Strain	22.67 (8.68)	22.41 (7.79)	0.26
Interpersonal Strain	22.59 (6.93)	22.32 (6.71)	0.30
Physical Strain	23.41 (8.68)	21.69 (8.44)	2.10*

*p<.05 (without Bonferroni correction)
**Significant after Bonferroni correction

Significant differences were found for two of the DASS scales: Anxiety [t (45) = 3.21, p<.016]; and Stress [t (45) = 2.30, p<.05, without Bonferroni correction]. These findings show that symptom levels improved after a brief period alongside immediately following a return from sea. For the PSQ scales, physical strain was found to decrease significantly from baseline ratings at sea to baseline ratings alongside [t (45) = 2.10, p<.05, without Bonferroni correction]. Clinical findings at each baseline measure for the DASS are presented in Table 22.

Table 22

Clinical Findings for the DASS Scales During Baseline Measures

Scale	Baseline Sea Mean (*SD*) (*n*=66)	No. in Clinical Range	Baseline Alongside Mean (*SD*) (*n*=53)	No. in Clinical Range
Depression	5.75 (5.59)	13 (19.6%)	4.43 (4.87)	13 (24.6%)
Anxiety	3.33 (4.87)	6 (9.0%)	2.87 (4.95)	6 (11.4%)
Stress	8.57 (7.59)	13 (19.5%)	7.85 (7.39)	10 (19.0%)

Thirteen subjects were in the clinical range for depression and stress at Baseline Sea. The numbers remained unchanged for depression when alongside but decreased slightly for stress. However, since the sample size also decreased, coming alongside did not necessarily alleviate symptoms.

Table 23

Clinical Findings for the PSQ Subscales During Baseline Measures

Subscale	Baseline Sea Mean (*SD*) (*n*=66)	Frequency of Personnel Above 60T (%)	Baseline Alongside Mean (*SD*) (*n*=53)	Frequency of Personnel Above 60T (%)	Chi-Square
Vocational Strain	18.98 (4.12)	10 (15.1%)	20.47 (5.36)	14 (26.6%)	1.67
Psychological Strain	21.71 (8.14)	16 (24.0%)	21.94 (7.82)	12 (22.8%)	0.00
Interpersonal Strain	22.36 (6.41)	13 (19.5%)	21.96 (6.40)	10 (19.0%)	0.01
Physical Strain	23.68 (8.29)	17 (25.5%)	21.72 (8.24)	10 (19.0%)	0.45

Note. None of the chi-square tests comparing frequency of personnel above 60T at sea versus alongside were statistically significant.

The means and standard deviations for the PSQ baseline measures are shown in Table 23. The means for participants as a whole fell within the normal range. The four subscales of the PSQ were examined for maladaptive strain. For the responses relating to the past two weeks at sea, the percentage of respondents reporting at least mild levels of strain was highest for physical strain (25.5%) and psychological strain (24%) (Table 23). Psychological strain, which measures emotional problems being experienced, remained at maladaptive levels at the baseline measure alongside for 22.8% of respondents. The percentage of personnel reporting maladaptive vocational strain, which measures problems in work quality or output, and attitudes towards work, increased from sea time to alongside (15.1% versus 26.6%) but this increase was not statistically significant. Percentage of personnel reporting mild physical strain decreased with coming alongside (25% versus 19%), which could be expected given opportunities to manoeuvre outside of the boat. None of these changes in maladaptive strain from sea time to alongside were statistically significant.

7.4 Discussion

This study examined and compared depression, anxiety, stress and strain variables when submariners were working at sea, and when they were working alongside. Methodological considerations of this study are highlighted, as well as a summary of key findings and recommendations.

7.4.1 Methodological Issues

It was not practically possible to collect baseline data on a daily basis, particularly in the sea-going environment. As such, it was arbitrarily decided to collect data retrospectively over the past two weeks to obtain more consistent symptom reporting. It is acknowledged that this type of reporting could have been affected by memory decay (Whitley, 1996). However, in terms of statistical analyses between Baseline Sea and Baseline Alongside measures it could be assumed that both baselines would be comparatively at risk of this occurring.

7.4.2 Symptom Outcomes

Symptom levels improved after only a brief period alongside. Anxiety clearly decreased, and this could reflect the decrease in risk/danger when alongside. Additionally, any separation-related anxiety would be eased with being alongside. Stress symptoms, as well as physical strain also showed some improvement, suggesting that being alongside, even if only for a short time, can provide some symptom relief for submariners in general. However, personnel reporting maladaptive levels of strain did not experience a significant change with coming alongside. This is further confirmed with no real change in percentage of personnel in the clinical range from Baseline Sea to Baseline Alongside for depression, anxiety or

stress. Such findings suggest that personnel at clinical levels of symptomatology require some additional form of intervention to decrease symptoms.

Previously, unless submariners identified themselves as requiring assistance, it was not possible to detect those in need of intervention. However, since 2003, submariners have been completing Mental Health Screens (Health Bulletin, 2003a) as part of their annual medical check-up. They also have a screening interview on return home from deployment (Health Bulletin, 2003b), which was implemented in 2005. These screens examine for depression, anxiety, trauma, alcohol use, and major stressors, and gather qualitative information on their experiences. This has enabled early detection of problems and an opportunity for follow-up intervention and support. The Submarine Squadron in conjunction with Medical and Psychology services were keen to initiate this to increase support for submariners. Qualitative feedback suggests that submariners perceive these services to be more ‘fair’, as it had previously only been available to ship personnel. In addition, submariners have used this opportunity for psychological assistance, and the psychologists have been able to intervene earlier, particularly for those with elevated trauma or depressive symptomatology.

7.4.3 Summary

The lack of significant change in the other strain areas indicates that ongoing pressures remain and that submariners are not gaining sufficient respite when alongside. This is obviously impacted by manning, in terms of leave and rest opportunities. However, as noted previously greater involvement in recreational activity is associated with less strain and frustration. Scheduling such activity into the

boat's weekly program, for example through the base Physical Trainers, may help to reduce strain and increase submariners' capacity to meet organisational demands.