

The impact of Great Barrier Reef Pilotage work on wives and families

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Abstract

A survey of the wives/partners of Great Barrier Reef pilots was used to determine the impact of pilotage work on wives and families. Analysis of the quantitative and qualitative data from 35 wives (response rate 60%) indicated respondents were relatively older (> 51% aged over 50 years), well-educated and generally well-satisfied with married life. Sixty-eight percent were currently employed and 22% had children under 18 years. All wives raised concern over the impact of competition between piloting organisations on pilots and their families. Financial issues were of central concern to the wives with respondents indicating their participation in the paid workforce was directly related to the deregulation of the industry and the consequent lowering of income and financial uncertainty. The wives reported that much of the stress their husbands experienced, particularly issues surrounding income structure, was also attributable to the deregulation of the industry. Seventy percent of respondents reported concern regarding the impact of the physical risks and fatigue of pilotage work on their husbands. The home and away nature of pilotage work was linked to the experience of stress by the majority of participants at least some of the time, 60% of the sample reported difficulties coping with stress - with altered eating habits being predominantly used as a coping mechanism. From the two measures of psychological well-being used in this study approximately 14% of the sample were anxious at the time of the study. Nine percent of respondents were considered to be depressed. In comparison, normative data indicates approximately 3% of the adult population suffers major depression. A substantial number of wives perceived a lack of emotional or informational support. The results of this study provide an initial insight into some of the difficulties wives experience as a result of their husband's pilotage work in the Great Barrier Reef region and suggest that a number of these women appear to be experiencing "Intermittent Husband Syndrome".

1.0 Introduction

A number of studies have indicated that separation from family and home is a significant contributing factor to the level of stress experienced by seafarers and their families (Foster & Cacioppe 1986; Shipley & Cook 1980; Sutherland & Flin 1989). When the health, stress and fatigue of 1806 Australian seafarers was recently examined (Parker et al. 1997), the home-work interface was the highest ranked source of occupational stress for all seafaring groups. The transition between home and work, particularly the first seven days at home or sea, was documented as being difficult for all family members. Seafarers also expressed concern over

the pressure placed on wives as a consequence of having full responsibility for the home and family for extended periods of time. Similarly, literature from the aviation industry has highlighted that an intimate relationship exists between a pilot's home life, work situation, work performance and well-being (Cooper & Sloan 1985; Karlins et al. 1989).

The impact of regular partings and reunions on family members left at home has been less frequently acknowledged. One of the first groups to document this issue was Morrice and Taylor (1978). These researchers were attracted by what appeared to be a recurrent pattern of clinical symptoms of anxiety and depression in women whose husbands were employed in the off-shore oil industry. Therefore, a study was conducted which compared the health and well-being of 200 off-shore wives with 100 on-shore wives (Taylor et al. 1985). Results of this survey indicated that while no differences between the two groups existed in terms of general health, the off-shore wives experienced increased levels of anxiety and depression related to frequent separations from their husbands. In most situations, the wives were able to successfully cope with their husband's absence and thus, the anxiety and depression were not significantly problematic. However, approximately 10 percent of off-shore wives exhibited ineffective coping strategies and were classified as suffering from 'Intermittent Husband Syndrome' (IHS). This term was coined by Morrice and Taylor (1978) and describes a triad of symptoms: anxiety, depression and sexual difficulties, which occur as a result of frequent partings and reunions between a wife and husband.

Subsequent studies have provided further evidence suggesting that the well-being of family members remaining at home can be negatively affected by frequent separations. A survey of wives of commercial airline workers based in Hong Kong showed that aircrew wives had significantly lower levels of well-being, and wives under 40 years of age, significantly higher levels of depressive mood when compared to a group of ground crew wives (Rigg & Cosgrove 1994). Comments from aircrew wives also indicated that the frequent separations and reunions were difficult to cope with because of the disruptions they caused to the family's routine (Rigg & Cosgrove 1994). These results led the authors to conclude that aircrew wives, and in particular younger aircrew wives, may be susceptible to the psychological problems present in the IHS.

Similarly, results from a survey of 52 wives of Australian seafarers indicated that 83 percent of the wives experienced stress when their partner was either due home or due to return to sea. Seventy nine percent of children were perceived by their mothers to experience stress prior to and after the arrival home of their father (Foster & Cacioppe 1986). Hence, it is apparent that the home and away nature of seafaring work impacts on all family members.

Previous studies investigating English (Shiple & Cook 1980), Dutch (de Vries-Griever 1982) and Australian marine pilots operating in the Port Phillip region (Berger 1984) have acknowledged the disruptive effects pilotage work can have on the lifestyle and family life of pilots, and the importance of a stable family situation on pilotage performance. These studies also recognise the value in documenting the wives assessments of situations as a means of verifying pilots' comments and complaints. This is an important factor given the ever-present questions regarding the accuracy of self-report data.

The work practices of Great Barrier Reef pilots frequently require pilots to spend time away from home. These periods of separation may last anywhere between a few days to several weeks. Additionally, since 1993 pilotage in the Great Barrier Reef region has changed from

the one provider situation which had existed for more than 100 years. This change has encouraged competition and to date, three pilotage companies have emerged. Anecdotal information from industry sources indicates that this change has caused a high level of stress and fatigue to pilots and has also impacted upon the lives of their families. To examine if and how Great Barrier Reef pilotage work impacts on the wives/partners of pilots, the present study was undertaken. This work was fully supported by Pilot Advisory Group members who believed input from the wives/partners would enhance a continuing investigation concerned with the fatigue status of Great Barrier Reef pilots.

2.0 Methodology

To examine the impact that marine pilotage work has on the wives/partners of Great Barrier Reef pilots, a questionnaire was developed. The questionnaire consisted of 17 questions (100 items). It was distributed to all wives/partners of Great Barrier Reef pilots (n=58). The study was conducted with approval from the Queensland University of Technology Research Ethics Committee.

2.1 Development of the questionnaire

A preliminary draft of the questionnaire was sent to three pilots' wives (one from each pilot company). On the basis of their feedback, the questionnaire was modified. Study specific measures; that is those related specifically to pilotage work, were developed from several previous studies of marine pilots (Parker et al. 1997; Berger 1984; Shipley & Cook 1980). Additionally, topics addressed in previous studies of air crew wives (Cooper & Sloan 1985; Rigg and Cosgrove 1994) and wives of off-shore oil rig workers (Taylor et al. 1985) were incorporated in the questionnaire.

The final questionnaire totalled 100 items and sought information on: (i) demographic characteristics; (ii) the physical, mental, financial and organisational impact of marine pilotage work on husbands; (iii) the impact of the home and away nature of marine pilotage work on spouses and families; (iv) marital satisfaction (dyadic adjustment); (v) social support; (vi) general health and fitness; and (vii) psychological well-being (particularly the experience of anxiety and depression). Space for additional comments was provided to enable the wives/partners to elaborate on issues or to raise other pertinent points not addressed by the questionnaire.

2.2 Pilot Testing

The questionnaire was pilot tested with a group of 4 women in similar circumstances to the wives of marine pilots; that is, their husbands/partners' work involved extended periods of time being spent away from home. These women were requested to complete the questionnaire and comment on the content, suitability and acceptability of the questionnaire. Their comments were incorporated into the questionnaire before it was distributed to pilots' wives. A copy of the Questionnaire is attached in Appendix 3.

2.3 Questionnaire distribution and reminder system

Questionnaires (including a stamped-addressed envelope for returns) were distributed through the pilotage companies and posted to the home addresses of participants. The diverse location of participants in a number of Queensland coastal regions and interstate made the personal administration of the questionnaires impractical. An information page in the questionnaire fully explained the purpose of the study and all aspects of confidentiality. A reminder system was implemented consisting of two individual reminders to each participant.

2.4 Measures

2.4.1 Demographic

Items in this section included information on age, marital status, education, country of birth, number and ages of children and employment status.

2.4.2 Industry-specific

The 20 items in this section were designed to assess the degree of concern wives felt about the impact of industry-specific issues on their spouses. These items examined: (i) the physical and mental demands and risks associated with piloting; (ii) stress and health related issues; (iii) financial issues (particularly income, superannuation, loss of income, adequacy and regularity of income security); and (iv) organisational issues (including competition). Respondents were asked to rate the degree of concern associated with the impact of these industry specific issues on spouses on a six point Likert scale ranging from 'very definitely is not a concern' (scale = 1) to 'very definitely is a concern' (scale = 6).

On the basis of factor analysis three indexes were identified, these were: (i) concern for the physical and mental stress on partner; (ii) concern for long term financial issues; and (iv) concern about the uncertainty associated with piloting. Index construction and reliabilities are discussed in detail in the Results section of this report.

2.4.3 The home and away nature of pilotage work

The 26 items in this section were designed to measure the impact of the home and away nature of pilotage work on spouses/partners and families. This section contained a number of items examining each of the following: (i) the transition period between work and home; (ii) the uncertainty of the timing and duration of periods at home and at sea; (iii) the methods of coping spouse/partners used (particularly smoking, drinking and drug taking) which were due to the absence of a partner; (iv) coping with emergency situations alone; and (v) the positive and negative effects of pilotage work on spouse and family. Respondents were asked to rate these items on a four point Likert scale ranging from 'never' (scale = 1) to 'always' (scale = 4).

No discernible patterns emerged from the factor analysis of these items. Therefore the items were treated as single items. However, for ease of presentation and interpretation these

items were grouped on the following basis: items examining the experience of stress; items examining ways of coping with stress; items examining the impact of pilotage work on family life; items highlighting general areas of concern. 2.4.4 Marital satisfaction: Spanier Dyadic Adjustment Scale

The Spanier Dyadic Adjustment Scale (Spanier, 1976) is designed to assess the quality of the relationship of either married or cohabiting couples and comprises four interrelated sub-scales (Dyadic Consensus, Dyadic Cohesion, Dyadic Satisfaction and Affection Expression). Seven items assessing Dyadic Satisfaction were used. Previous reports indicate sub-scales can be used independently without losing confidence in either the reliability or the validity of the measure. Using Cronbach's alpha as the reliability estimate Spanier (1976) reports an overall scale reliability of 0.96 with a reliability score of 0.94 for the Dyadic Satisfaction. Respondents were asked to rate their responses on a five point Likert scale ranging from 'all of the time' (scale = 1) to 'never' (scale = 5).

2.4.5 Social support

The Medical Outcomes Study (MOS) (Sherbourne and Stewart, 1991) social support scale was used to measure social support. This is a 20 item scale which contains four sub-scales: tangible support, affection, positive interactions and emotional/informational support. Respondents were asked to assess the frequency of experiencing items in each of the sub-scales on a five point Likert scale ranging from 'never' (scale = 1) to 'all of the time' (scale = 5).

2.4.6 General health and fitness

The four questions in this section related to the rating of present general health, presence of physical or mental health problems, medication being taken and rating of overall fitness levels.

2.4.7 Psychological well-being: anxiety and depression

The Delusions Symptoms States Inventory (DSSI) (Foulds and Bedford, 1978) was used to measure levels of anxiety and depression. This is a brief, 14 item measure which contains two seven item sub-scales assessing levels of anxiety and depression. This measure was selected because it provides a clinically relevant measure of both anxiety and depression. The DSSI has been validated in adult Australian populations (Boyle, 1993; Henderson et al. 1981; Keeping et al., 1989). Respondents were asked to rate their feelings on each of the items on a five point Likert scale ranging from 'all of the time' (scale = 1) to 'never' (scale = 5).

2.5 Data analysis

2.5.1 The Qualitative Data

To facilitate interpretation of the questionnaire, and to provide a clearer understanding of the context within which responses to questionnaire items were made, participants were requested to include any additional comments they might have on the issues covered within the questionnaire or on issues that were omitted from the questionnaire. This qualitative data was analysed by examining the comments for recurrent patterns and themes. The data has been incorporated within the relevant sections of the results. Because of the small number of participants and to preserve anonymity, no identifying information has been included.

2.5.2 The Quantitative Data

The quantitative data was analysed using SAS-PC. Standard univariate statistics were used to describe the responses. Factor analysis, using the principal components method to extract the initial factors and a promax (oblique) rotation method, was used to help identify constructs underlying a series of questions dealing with knowledge, attitudes and beliefs. Further item analysis involving assessment of the reliability of scales and their interpretability, was undertaken before the scales were finalised. Index and scale construction is described in detail in the following section. It is important to note that some frequencies included in tables do not add to 100 due to rounding.

Cronbach's alpha coefficients were calculated to determine the reliability of each of the aggregate scores used in the report. Scales showed a high level of reliability with Cronbach's alpha coefficients ranging from 0.83 to 0.98. Scale coefficients are shown in Appendix 2.

Results and Discussion

3.0 The Study Sample

A total of 35 wives/partners of Great Barrier Reef Pilots participated in the study, giving a response rate of 60%. This response rate was more favourable than in similar studies involving responses to postal surveys by the wives of commercial airline pilots (56%) (Cooper & Sloan 1985) and wives of Australian seafarers (40%) (Foster and Cacioppe 1986). However, it was less favourable than the 70% response from the wives of off shore oil rig workers (Taylor et al. 1985). Participation in the study was voluntary and anonymous.

Table 1 provides the socio-demographic characteristics of the respondents. Approximately 49% of the sample were aged 50 years or younger. The majority of respondents were currently married.

Table 1

Demographic Characteristics of the Sample

Variable	%
Age	48.6%
Less than 50 years	51.4%
50 years or older	
Marital Status	
Currently married	94.3
Never married	2.9
Separated	2.9
Level of Education completed	
High School	40.0
Technical school	28.6
University Graduate	20.0
Postgraduate Degree	11.4
Employment Status	
Currently employed	68.6
Children	
At least one child 18 years or less	22.9

The women participating in the study were well educated, with just over 30% having a university or postgraduate qualification. The majority of the sample were currently employed (approximately 69%). The number of wives employed was higher than broadly comparable Australian population data indicating 58% of women aged between 15 and 64 are in the workforce (Australian Bureau of Statistics 1998). The percentage of the present wives employed was also higher than data from earlier studies indicating 54% of wives of British airline pilots (Cooper & Sloan 1985), 50% of wives of Australian seafarers (Foster & Cacioppe 1986), and 33% of off shore oil wives worked (Taylor et al. 1985). The older age category of the present wives and absence of young children in the present sample (only 23% of the sample have children aged 18 years or younger), may partly account for differences between the studies in the percentage of working wives.

From the qualitative data it was evident that for many of the women, participation in the paid workforce was directly related to deregulation and a consequent drop in family income. Several women felt they had, in fact, been 'forced' to return to the workforce to supplement the family income. Some of the older women who had been out of the paid work-force for 20 or more years, had found this return difficult and were unable to return to jobs they had been trained for, but now had to work in low skilled employment. Despite the mostly forced, rather than voluntary re-entry into the workforce by the present wives, some positive aspects of workforce participation by wives in other home and away situations have previously been reported. For instance, working wives of airline pilots tend to be less vulnerable to various forms of stress and life dissatisfaction than their non-working counterparts. The opportunity to pursue one's career and achievements leads to greater overall life and job satisfaction in the working wives of airline pilots (Cooper & Sloan 1985).

A number of women believed that the impact of their partners home and away lifestyle was 'much greater' when they were younger and had young children. The greater level of stress for the younger family is consistent with previous studies of marine pilots wives (Berger

1984) and Australian seafarers wives (Foster & Cacioppe 1986). Additionally, results from studies on other home and away occupations have shown younger wives tend to be more susceptible than older wives to symptoms of anxiety and depression associated with IHS (Rigg & Cosgrove 1994; Taylor et al. 1985).

4.0 INDUSTRY SPECIFIC ISSUES

Respondents were asked a series of 20 questions that examined their perceptions of their husband/partners work. On the basis of factor analysis three sub-scales were identified.

4.1 Concern for the physical and mental stress on partner.

This sub-scale comprised 9 items. These items and their frequencies are described in Table 2. Respondents were asked to "rate each statement in terms of the degree of concern it caused them".

Table 2

Distribution of scores on the nine items comprising the measure of concern for the physical and mental stress of partner

Item	Very Definitely not a concern	Definitely not a concern	Generally not a concern	Generally is a concern	Definitely is a concern	Very definitely is a concern
	%	%	%	%	%	%
1. The adequacy of your partners' rest periods between work	8.6	2.9	48.6	14.3	14.3	11.4
2. The physical demands experienced by your partner as a consequence of piloting work	8.6	11.4	34.3	25.7	11.4	8.6
3. The physical risks your partner encounters*	2.9	8.8	17.6	32.4	23.5	14.7
4. The mental demands experienced by your partner	11.4	8.6	25.7	11.4	25.7	17.1

5. The amount of fatigue experienced by your partner	5.7	5.7	20.0	31.4	20.0	17.1
6. The amount of stress experienced by your partner	8.6	2.9	28.6	22.9	17.1	20.0
7. The impact of piloting work on your partners health	11.4	0.0	40.0	17.1	14.4	17.1
8. The adequacy of your partners living conditions while away from home*	5.9	8.8	35.3	29.4	5.9	14.7
9. Amount of leisure time your partner receives**	3.1	3.1	37.5	12.5	25.0	18.8

Missing values *n=1; ** n= 3.

The physical risks and fatigue associated with piloting work were factors of concern to approximately 70% of the respondents. Sixty percent were concerned about the levels of stress associated with piloting. Approximately half of the sample were concerned about the mental demands made upon their partners; the amount of leisure time their partner received; the adequacy of their partners living conditions while they are away; and the impact that piloting work has upon their partner's health. The women were less concerned about the physical demands being made upon their partners and the adequacy of rest periods between work.

A number of women pointed out that the stress their partners were experiencing was, they believed, largely attributable to deregulation and the split between organisations. This was considered by at least two women to have seriously damaged their partners' health. A number of women also related the levels of stress and exhaustion their partners were experiencing to increased stress within the family. Deregulation and corporate changes have been shown previously to increase subjective ratings of stress and depression in commercial airline pilots, with implications for family life, health and safety (Little et al. 1990).

The women were also very concerned about the safety of their husbands/partners when they were away at sea. Several women described in considerable detail the dangers that their husbands/partners faced as Great Barrier Reef pilots and the types of accidents which have occurred. Levels of concern appear to rise during inclement weather.

4.1.1 Construction of the Index

Factor analysis was used to group the 20 industry specific items. The index was constructed on the following basis: women who expressed "very, definitely or generally no concern" scored 0 and those who expressed concern were scored 1. Scores were then summed to provide a count of the number of items women were concerned about. Three respondents did not express concern about any items. However, more than half the respondents were concerned about five or more of the items. Seven respondents were concerned about all nine items. The reliability of the index as determined by Cronbach's alpha was 0.92.

4.2 Concern for Long Term Financial Issues

This sub-scale comprised six items. The item content and distribution of responses across response categories are presented in Table 3.

Table 3

Distribution of scores on the six items comprising the measure of concern for long term financial issues

Item	Very Definitely not a concern	Definitely not a concern	Generally not a concern	Generally is a concern	Definitely is a concern	Very definitely is a concern
	%	%	%	%	%	%
1. Changes in pilotage income structure	2.9	0.0	2.9	8.6	28.6	57.1
2. Changes in the costs of pilotage	0.0	2.9	11.4	17.1	14.3	54.3
3. Financial arrangements during times of sickness*	0.0	2.9	23.5	26.5	14.7	32.4
4. The adequacy of your partners superannuation arrangements*	0.0	11.8	11.8	29.4	14.7	32.4
5. Changes in the structure of pilotage in the Great Barrier Reef Region**	0.0	3.0	15.2	15.2	21.2	45.5
6. The security associated with your partners work**	3.0	0.0	30.3	6.1	24.2	36.4

Missing values *n=1; ** n=2.

Financial issues were of central concern to these women. The changes in income structure were of concern to 94% of the women. Similarly, other work has shown wives of airline pilots expressed a great degree of concern over resultant income changes following airline restructuring (Cooper & Sloan 1985). According to these authors since the wives of airline pilots (and also the present wives) virtually take on domestic responsibility for the family unit, the level of anxiety associated with changes in income levels was to be expected. The women were least concerned about the security associated with piloting work although approximately 45% of the sample expressed some degree of concern over this issue.

Concern about financial matters and particularly the consequences of changes in the structure of the industry were clearly evident in the qualitative data. The women commonly reported a decline in income, with several women commenting that they did not believe that the men were now being paid what they were worth. The women expressed considerable concern that their husbands were not sufficiently remunerated for their work, in view of the high level of skills and responsibility demanded by pilotage work in the Great Barrier Reef region. The restructuring has also increased the expenses associated with their partner's work. For example, Great Barrier Reef pilots are now required to fund their own superannuation and income protection insurance, as well as pay their own travel and accommodation expenses. Concern was also expressed about delays pilots were experiencing being paid for work completed. These delays appear to compound problems associated with increasing costs and reduced income since competition was introduced. Concerns about money were linked to increased levels of family stress. The financial burden has led to lifestyle changes for many of the families with women having to return to the paid workforce, and some families having to borrow money or sell property to survive following deregulation.

4.2.1 Construction of the Index

The index was constructed on the following basis: women who expressed "very", "definitely" or "generally no concern" scored 0 and those who expressed being "generally", "definitely" or "very concerned" about each item were scored 1. Scores were then summed to provide a count of the number of items women were concerned about. Not surprisingly, only one respondent was not concerned about any of these items. Sixteen women were concerned about all six items. The internal reliability of this measure was assessed using Cronbach's alpha which was 0.86 for these six items.

4.3 Concern for the Uncertainty Associated with Piloting

On the basis of the factor analysis a third sub-scale was identified comprising three items. The item content and distribution of responses across categories is presented in Table 4.

Table 4

Distribution of scores on the 3 items comprising the measure of concern for the uncertainty associated with piloting

Item	Very Definitely not a concern	Definitely not a concern	Generally not a concern	Generally is a concern	Definitely is a concern	Very definitely is a concern
	%	%	%	%	%	%
1. The uncertainty associated with how long partner will be at home between tours of duty*	2.9	5.9	20.6	20.6	8.8	41.2
2. Regularity of income*	0.0	2.9	14.7	17.6	23.5	41.2
3. Funds available for recreation and leisure*	0.0	5.9	29.4	17.6	11.8	35.3

Missing Values * n=1

Eighty-two percent of women expressed concern about the regularity of their income. The majority of women (70%) were also concerned about the uncertainty associated with how long their partner would be home between tours of duty. From the qualitative comments it appears that extended periods of time at home can heighten financial worries due to the uncertainty over when more work will become available. Several women commented that this uncertainty also made planning any social and leisure activities difficult. It was difficult to rely on their partner when they did not "know how long he would be at home". Approximately 64% of women expressed some level of concern about funds being available for recreational and leisure activities.

4.4 Additional Items

Two additional items did not load on any sub-scale. These are described in the following table.

Table 5

Distribution of scores on the two items examining competition between piloting organisations and the qualifications required for Great Barrier Reef Pilots

Item	Very Definitely not a concern	Definitely not a concern	Generally not a concern	Generally is a concern	Definitely is a concern	Very definitely is a concern
	%	%	%	%	%	%
The impact of competition between piloting organisations on your partner's stress levels	0.0	0.0	0.0	8.6	25.7	65.7
2. The qualifications required for entry into the Great Barrier Reef pilotage services**	9.1	3.0	27.3	6.1	27.3	27.3

Missing values * n=1

The competition between piloting organisations which has come about as a direct result of restructuring in the industry was of concern to 100% of pilots wives. From the qualitative comments it seems that the competition for work has just about 'pushed' at least one family 'over the edge'. It was also believed to account for some serious health problems experienced by the pilots such as high blood pressure. Indications of a higher than normal presence of elevated blood pressure have been shown in an earlier study of Australian seafarers which included a sample of the present pilots (Parker et al. 1997).

Approximately 60% of the women were also concerned about the qualifications required for entry to pilotage services. Several women believed that the lowering of qualifications increased levels of risk and that the present safety rate was, in part, due to the previously high entrance requirements. Lowered entrance qualifications have also led to a perception of a loss of prestige in the profession of Barrier Reef Pilots. Almost all of the women made the point that while piloting was once a most prestigious position, this is now not the case. One respondent linked this to the fact that her husband was no longer happy in the profession.

5.0 THE HOME AND AWAY NATURE OF PILOTAGE WORK

Respondents were asked a series of 26 questions which explored in some detail the impact of the home and away nature of pilotage work and how this affects the spouse and the family. These have been grouped into the following categories: items focusing on stress experienced by the spouse and family; methods of coping with stress during the partner's absences; and items examining the impact of pilotage on different aspects of family life.

5.1 The Experience of Stress

Five items explicitly asked the spouse whether or not she experienced stress as a result of the home and away nature of her partners lifestyle. The item content and distribution of responses across categories is contained in the following table. Respondents were asked "How often do you....?"

Table 6

Distribution of scores across the five items examining the effects of stress on the life of the spouse and family of pilots

Item	Never %	Sometimes %	Often %	Always %
1. Experience stress when your partner is due to return to sea	25.7	54.3	17.1	2.9
2. Experience stress when your partner arrives home	45.7	28.6	17.1	8.6
3. Think your children are stressed when your partner is due to return to sea*	51.7	41.4	6.9	0.0
4. Think your children are stressed when your partner returns home.**	50.0	35.7	14.3	0.0
5. Experience stress over the uncertainty about the duration your partner is will be away from home	28.6	45.7	17.1	8.6

Missing values *n=6; **n=7

The missing values reflect women who do not have children or do not have children at home.

The majority of women appeared to experience only infrequent stress when their partner arrived home and do not believe that their children experience stress. A partner returning home, and to a lesser extent, the uncertainty over the length of time a partner will be away, appeared to cause stress at least "sometimes". Approximately one quarter of the women experience considerable stress when their partner returns; considerable stress was also related to the uncertainty associated with piloting and the duration of tours of duty. The qualitative comments indicated that some of this stress was related to the financial pressures associated with uncertainty about the next job.

The percentage of wives reporting stress on a partners return was considerably lower in the present study than the 80% figure reported by Foster and Cacioppe (1986). There are several potential explanations for this. Firstly, it is possible that the shorter periods away from home experienced by marine pilots (3 weeks) compared with those experienced by seafarers in general maritime work (8 weeks) (Foster & Cacioppe, 1986) may account for the differences in the level of reported stress by wives. From the qualitative responses it appeared that those wives who had experienced both life as a wife of a seafaring husband and life as the wife of a pilot, found the shorter periods pilots spend away far more preferable. One woman believed that she saw more of her partner than couples with a

partner working 9 to 5. However, another woman with young children expressed concern about the effect the home and away nature of the work was having on her partner's relationship with their children.

Secondly, the study by Foster and Cacioppe (1986) included a group of younger women; 23% of their sample were under 30 years of age. This may account for the differences in reported stress from this source. Studies have previously shown that younger wives are more susceptible than older wives to symptoms related to IHS (Taylor et al. 1985).

5.2 Items Examining Ways of Coping with Stress

There are a number of different ways of coping with stress. Respondents were asked a series of eight items that examined some coping strategies. The item content and distributions of scores are presented in Table 7.

Table 7

Distribution of scores across the eight items examining methods of coping with a home and away lifestyle

Item	Never %	Sometimes %	Often %	Always %
1. Have difficulty coping when your partner is at sea	37.1	60.0	0.0	2.9
2. Use medication to help you cope when your partner is away	88.6	5.7	0.0	5.7
3. Use social drugs to help you cope when your partner is away	94.3	2.9	0.0	2.9
4. If you smoke, do you smoke more when your partner is away***	89.5	5.3	5.3	0.0
5. If you drink alcohol do you consume more when your partner is away**	87.1	9.7	3.2	0.0
6. Tend to eat more when your partner is away	77.1	22.9	0.0	0.0
7. Tend to eat less when your partner is away*	41.2	47.1	8.8	
8. Feel that a support group for wives would help you cope	48.7	40.0	5.7	5.7

Missing values * n=1; ** n=4; *** n=16

The majority of women (60%) admitted to sometimes having difficulty coping when their partner is away. The most commonly reported effect of this form of stress on the wives is reflected in their eating patterns. While some women (approximately 23%) tend to eat more when their partner is away, the effect on approximately 47% of women is that they eat less. Previous work by Taylor et al. (1986) found that 59% of wives of off-shore oil workers reported changes in eating patterns during their partner's absence.

The use of social drugs, smoking and alcohol do not appear to increase when partners are away. The percentage of wives reporting the use of medication (~11%) to cope during a

partner's absence was similar to earlier findings indicating approximately 9% of wives of Australian seafarers used medication to cope with spousal absences (Foster & Cacioppe 1986). While the samples in both these seafaring studies were quite small, it is interesting to note that the percentage of wives using medication to cope was over twice that reported for the general Australian population.(between 3-4%) (ABS, 1995). This finding may highlight the additional levels of stress experienced by seafaring wives.

It was also evident from the present data that for a small number of women, coping, and methods of coping with separation is a very important issue. Over half the women (51.4%) reported that a support group for wives would help them cope. The formation of a support group may be an initiative which could be pursued jointly by all three pilot providers. Presently in Australia, the Australian Seafarers Assistance service provides support for seafarers and their families but this does not include pilots. One international airline has initiated a Spousal Program to acknowledge the role of wives and families in the pilots' working environment and help the pilots become more aware of the demands placed on wives and families by their occupation (Karlins et al. 1989).

In their more detailed qualitative responses, several women pointed out that they knew what to expect from their life before they married a seafarer. They knew that they would have to cope with a life spent, at least in part, separated from their partners. In their opinion, they do cope. There is also a perception amongst a number of the women that they are very resourceful and strong themselves; coping on their own is not a major issue. One commented that a seafarer's wife is 'born' not 'made'.

5.3 Items Examining the Impact of Piloting Work on aspects of Family Life

The home and away nature of Barrier Reef piloting impacts on all aspects of family life. The following eleven items examine some of these issues. Table 8 presents the item content and distributions for these eleven items.

Table 8

Distribution of scores across the eleven items examining the effects a home and away lifestyle has on wives/partners families

Item	Never %	Sometimes %	Often %	Always %
1. Feel your relationship is strongly at risk because your partner is working away from home (e.g. female companions)	77.1	11.4	8.6	2.9
2. Wish your husband/partner had a shore based job	40.0	40.0	14.3	5.7
3. Find that your partners work disrupts your sleep	51.4	31.4	17.1	0.0
4. Find that your partner's work limits your social life*	14.7	38.2	20.6	26.5
5 Find that your partners work limits your career and work*	44.1	35.3	8.8	11.8

6. Find that additional free time you are able to spend with your partner after a tour of duty is a positive aspect of his work	11.4	31.4	31.4	25.7
7. Enjoy having time to pursue your own interests while your partner is away	11.4	45.7	25.7	17.1
8. Find that the decisions you make cause problems when your partner returns*	44.1	44.1	5.9	5.9
9. Find that you give in following a fight because you know your partner is about to go away*	44.1	35.3	11.8	8.8
10. Find that the home and away basis of your partners work is stimulating to your relationship	20.0	40.0	25.7	14.3

Missing values * n=1

Almost one quarter of the women (23%) participating in this study appeared to be concerned about the nature of their partner's work being a risk to their relationship. This figure was somewhat less than the 42% of wives of Australian seafarers reporting concern over marital risk (Foster & Cacioppe 1986).

Approximately 47% of respondents believe that their partner's work 'often' or 'always' limits their social life. Previous work has shown that the major cause of most arguments between wives of off shore oil workers and their partners revolved around the impact of the job on social life (Taylor et al. 1985). The disruption to social lives caused by airline schedules has also been shown to be a significant predictor of life dissatisfaction in the wives of airline pilots (Cooper & Sloan 1985). For the seafaring wife, interacting in society as sometimes single and sometimes married has been shown to lead to a fringe dwelling approach to involvement in social activities (Foster & Cacioppe 1986). Strategies to reduce the upheaval to social life such as rosters containing considerable forward planning (Rigg & Cosgrove 1994) are likely to be extremely difficult to implement in Great Barrier Reef pilotage work due to the unpredictable nature of work availability in the region.

For the majority of respondents however, the 'dual' nature of their lives; that is, sometimes being a married woman and at other times a single mother, had some benefits. Approximately 85% of women reported that the additional time they were able to spend with their partner after a tour of duty was positive, but that they also enjoyed having time to themselves when their partner was away. For 60% of the women this home and away lifestyle was stimulating to their relationships. According to one respondent "life as a continual flow of the unexpected is stimulating".

The qualitative data also highlighted another perspective. Several respondents have found that being forced back into the workforce has meant that they actually have less time to spend with their partner, because while he is at home, they are at work.

Disrupted sleeping patterns of spouses appear to be characteristic of home and away occupations. Approximately 55% of the present wives, 60% of off-shore wives (Taylor et al. 1985) and airline pilots wives (Rigg & Cosgrove 1994) reported disrupted sleep due to their husbands work. Although not able to be assessed from the present data, it is very likely that pilots who reside close to the operational region and return home more frequently (Northern and Central Queensland) may cause more disrupted sleep for wives and families, than colleagues who return home only on completion of a tour of duty (South East Queensland).

5.4 Items Examining General Areas of Concern

The women were also asked a series of three questions focusing on concern with household security, loneliness and with having to cope with crises on the own. The item content and distribution of scores are described in the following table.

Table 9

Distribution of scores across the three items examining general areas of concern

Item	Never %	Sometimes %	Often %	Always %
1. Experience concern over household security while your partner is away	31.4	40.0	22.9	5.7
2. Find that loneliness is a concern when your partner is away*	40.0	31.4	20.0	8.6
3. Experience concern over having to attend to crisis situations when your partner is away*	20.6	55.9	17.6	5.9

Missing values * n=1

The majority of women were concerned with these issues at least 'sometimes' or 'often'. Of greatest concern (79.4%) was attending to crises (either personal or household) while their partner was away. Household security was a concern for 69% of respondents. Loneliness was a concern for 60% of respondents.

The qualitative data provided some insight into these results. A number of women commented that because their partner is often away, he is unable to share problems. For one respondent with a very serious health problem, her concern was with being alone at a time when she required help.

6.0 Marital Satisfaction – the Spanier Dyadic Adjustment Scale

The quality of interpersonal relationships and particularly those with a spouse or partner can influence quality of life and the ways in which people cope with their lives. The Spanier Dyadic Adjustment Scale was designed to assess the quality of a relationship for both married and cohabiting couples. The item content and distribution of scores across the seven items are detailed in Table 10. Respondents were asked "How well do the following statements describe the relationship between you and your partner"?

Table 10

Distribution of scores across the seven items comprising the marital satisfaction scale

Item	All the time	Most of the time	Some of the time	Rarely	Never
	%	%	%	%	%
1. In general, would you say things between you and your partner are going well	0.0	37.1	54.3	2.9	5.7
2. How often do you think about divorce, separation or termination of the relationship	0.0	2.9	11.4	25.7	60.0
3. How often do you or your partner leave the house after a fight	0.0	0.0	0.0	25.7	74.3
4. Do you find it easy to confide in your partner	42.9	42.9	5.7	2.9	5.7
5. Do you ever regret that you married or lived together	0.0	0.0	5.7	17.1	77.1
6. How often do you and your partner quarrel	0.0	5.7	31.4	54.3	8.6
7. How often do you and your partner 'get on each others nerves'.	5.7	5.7	34.3	51.4	2.9

The distribution of responses to this series of questions was skewed towards the end of the scale indicating satisfaction with the dyadic relationship. Only 2 respondents (6%) believed that things were never going well between themselves and their partner. One respondent (3%) was considering divorce. A further 9% expressed difficulty confiding in their partners. Just over 45% of respondents felt that they 'got on each others nerves' at least some of the time. These results suggest that this group of wives/partners experience a high level of marital satisfaction. However, it may also be that people found it difficult to respond to questions such as those which focus on relationships and relationship problems. In contrast to the other aspects of the questionnaire, there were no qualitative comments on the quality of marital relationships.

Stressful interpersonal relationships can affect personal well-being as well as workplace performance. For instance, the results of studies investigating the role of the spousal factor in aviator performance showed that a pilot's spouse is a key figure in promoting flight safety. A stable marriage with a supportive spouse or partner enables the aviator to perform more reliably and effectively (Cooper & Sloan 1985 ; Karlins et al. 1989). Moreover, the literature from the aviation industry has shown that when a home and away pattern of work exists, there are considerable positive or negative interactions between a pilot's home life, work situation, work performance and well-being.

6.1 Construction of the Scale

A scale of marital satisfaction was created by summing the scores across the seven items. The scale had a potential range of 10 to 50. The actual scale range was from 17 to 50. The reliability of the scale was determined using Cronbach's alpha. This was a very acceptable

0.83. Despite the wide usage of the Dyadic Adjustment Scale, few firm guidelines as to cutoffs which can be taken to represent marital distress exist. According to Spanier and Filsinger (1983: 164) "given the continuum of possible scores, it is inadvisable to recommend a fixed cutoff point". For the purposes of this study, level of dyadic satisfaction was treated as a dichotomous variable. A scale score of between 10 and 40 was considered to represent a low to moderate level of satisfaction with the relationship. A score between 41 and 50 was considered to indicate a high level of satisfaction. On this basis approximately 46% of the sample reported a moderate to low level of satisfaction with their relationship. Three respondents (9%) reported a very low level of satisfaction with their relationship scoring less than 30 on this measure of satisfaction.

7.0 SOCIAL SUPPORT

Considerable evidence now indicates the importance of social support to quality of life and to the ways in which individuals cope with stressful situations (Thoits 1995; Vaux 1988; Cohen and Wills 1985). Social support is believed to promote well-being either directly, by promoting well-being regardless of the level of stress the individual is experiencing, or indirectly, by 'buffering' or attenuating the stressor. There are two broad categories of social support. These are structural support and functional support (Cohen and Wills 1985). Structural support represents the individual's level of social integration or social connectedness and is determined by the number of social ties in a person's social network. Functional support refers to the individual's perception or appraisal of available support (Vaux 1988). Together these two forms of support are believed to promote well-being regardless of the levels of stress experienced. The measure used to assess the level of social support covers four categories of functional support. These are tangible support, affectionate support, positive social interaction and emotional or informational support. In addition a single item provides an estimate of structural support or the perceived size of the social network.

7.1 Structural Support

Respondents were asked to specify the number of close friends or relatives they have whom they can talk to about what is on their mind. The scores on this measure ranged from 1 (one respondent) to 20 or more (one respondent). Thirty-seven percent of respondents reported a close social network of between three and six people.

7.2 Tangible Support

Four items formed the measure of tangible support or practical assistance and focused on times of ill health. The item content and distribution of responses has been presented in the following table. Respondents were asked "How often do you have...?"

Table 11

Distribution of scores across the four items comprising the measure of tangible support

Item	Never	A little of the time	Some of the time	Most of the time	All the time
	%	%	%	%	%
1. Someone to help you if you were confined to bed	30.3	33.3	3.0	21.2	12.1
2. Someone to take you to the doctor if you needed it	15.2	24.2	15.2	36.4	9.1
3. Someone to prepare your meals if you were incapacitated	35.3	20.6	17.6	17.6	8.8
4. Someone to help you with daily chores if you were sick	38.2	20.6	11.8	20.6	8.8

Thirty percent of participants did not believe that they had someone to help them if they were confined to bed. A further third felt that this type of assistance would only be available a 'little of the time'. Thirty-five percent did not believe that they had someone to prepare meals for them if they were incapacitated, while 38% of respondents did not believe that anyone would help with daily chores if they were sick. The majority of respondents believed that someone would be available to take them to a doctor should they need it.

7.2.1 Construction of the Scale

The scores on this sub-scale were re-scaled to range from 0 to 100 with high scores indicating more support. The actual range of the scale was from 0, with three respondents reported access to no tangible support to 100 (2 respondents). Fifty-three percent of respondents scored 25 or less on this measure suggesting that for this group of respondents there is a lack of access to tangible support during times of ill health. The reliability of the scale as determined by Cronbach's alpha was 0.95 on the items.

7.3 Affectionate Support

Three items were used to measure this aspect of support; that is the perceived availability of affection. The item content and distribution of responses is described in the following table.

Table 12

Distribution of scores on the three items comprising the measure of affectionate support

Item	Never	A little of the time	Some of the time	Most of the time	All the time
	%	%	%	%	%
1. Someone who shows you love and affection	11.8	11.8	23.5	23.5	29.4
2. Someone who hugs you	23.5	11.8	23.5	20.6	20.6
3 Someone to love and make you feel wanted	15.6	12.5	21.9	21.9	28.1

The distribution of scores on the items comprising this scale was skewed towards the end of the scale indicating good affectionate support. However, a substantial minority of respondents perceived their levels of affectionate support to be quite low.

7.3.1 Construction of the Scale

The scores on this sub-scale were re-scaled to range from 0 to 100 with high scores indicating more support. The actual range was from 0 (2 respondents) to 100 (five respondents). Forty percent of respondents scored 50 or less on this measure, indicating lower levels of perceived affectionate support. The Cronbach's alpha measure of reliability for this scale was 0.86.

7.4 Positive Social Interaction

Respondents were asked a total of four items that assessed their levels of perceived positive social interaction. The item content and distribution of scores is detailed in the following table.

Table 13

Distribution of the scores across the four items comprising the measure of positive social interaction

Item	Never	A little of the time	Some of the time	Most of the time	All the time
	%	%	%	%	%
1. Someone to have a good time with	20.6	20.6	17.6	29.4	11.8
2 Someone to get together with for relaxation	14.7	14.7	23.5	32.4	14.7
3 Someone to do things with to help you get your mind off things	17.6	23.5	20.6	23.5	14.7
4. Someone to do something enjoyable with	8.8	29.4	17.6	29.4	14.7

The majority of participants reported having someone to have a good time with; someone to relax with; someone to help them get things off their mind and someone to do something enjoyable with at least some of the time. However, between 30 and 40% of respondents reported little or no positive social interaction. Respondents reported a greater perception of a lack of positive social interaction than was reported for affectionate support. This may indicate an unmet need amongst this group of respondents for increased positive social interaction. Difficulties in planning and involving partners in social events appears to be a common problem in home and away occupations (Rigg & Cosgrove 1994; Foster & Cacioppe 1986 ; Taylor et al. 1985) and may greatly contribute to the level of involvement in social situations in the community by the present wives.

7.4.1 Construction of the Scale

The scores on this sub-scale were re-scaled to range from 0 to 100 with high scores indicating more support. The actual scores ranged from 0 (one respondent) to 100 (3 respondents). Approximately 56% of the sample scored 50 or less on this measure, indicating lower levels of perceived positive social interaction. The Cronbach's alpha measure of reliability for this scale was 0.96.

7.5 Emotional or Informational Support

Eight items were used to assess levels of emotional or informational support. The item content and distribution of scores is presented in the following table.

Table 14

Distribution of scores for the eight items comprising the measure of emotional or informational support

Item	Never	A little of the time	Some of the time	Most of the time	All the time
	%	%	%	%	%
1. Someone you can count on to listen to you when you need to talk	5.9	23.5	14.7	32.4	23.5
2. Someone to give you good advice about a crisis	11.8	26.5	17.6	26.5	17.6
3. Someone to give you information to help you understand a situation	12.1	24.2	15.2	27.3	21.2
4. Someone to confide in and talk about yourself or your problem	5.9	26.5	20.6	32.4	14.7
5. Someone whose advice you really want	11.8	29.4	14.7	23.5	20.6
6. Someone to share your most private thoughts with	38.2	14.7	8.8	23.5	14.7
7. Someone to turn to for suggestions about how to deal with personal problems	17.6	29.4	11.8	26.5	14.7

8. Someone who understands your problems	20.6	14.7	23.5	26.5	14.7
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The majority of respondents (71%) believed that there was someone that they could count on to listen to them at least some of the time. Additionally, most respondents believed that they had access to someone for advice during a crisis (61%); someone who could provide them with information to help them understand a particular situation (64%); someone to confide in (68%); someone to provide wanted advice (59%); someone to provide assistance to deal with personal problems (53%) and someone who was understanding (65%). However, approximately 53% of respondents did not believe that they had access to someone to share their most private thoughts with. The numbers of women reporting a perceived lack of emotional and information support was substantial. The importance of a close confidant for the seafaring wife has been previously reported. Foster & Cacioppe (1986) indicated 80% of wives of Australian seafarers had a close friend in whom they could confide; however these respondents pointed out that unless the person was familiar with the seafaring life, their concerns could sometimes be misunderstood.

The qualitative data provided some insight into the issue of availability of social support. The qualitative comments indicated that those respondents who lived closer to family and relatives reported greater levels of social support than those who have had to move away from family for work purposes. Several respondents considered this dislocation of themselves and their children to be a major form of stress. Family, rather than friends, appeared to be the most important source of social support for a number of women. However at least one women who had relocated to another State reported that good friends and neighbours were important sources of support. Telephone contact was commonly used by those respondents who were geographically distanced from family support to maintain this link.

7.5.1 Construction of the Scale

The scores on this sub-scale were re-scaled to range from 0 to 100 with high scores indicating more support. The actual scores on this scale ranged from 0 (one respondent) to 100 (four respondents). Approximately 50% of respondents scored 50 or less on this measure. The Cronbach's alpha measure of reliability was 0.98 for this scale.

8.0 GENERAL HEALTH

The responses to two global items assessing general health are described in the following table.

Table 15

Distribution of the scores for the two items assessing the perceived health of respondents

Item	Poor	Fair	Good	Excellent
	%	%	%	%
1. Which response best describes your present general health?	0.0	20.0	42.9	37.1
2. How would you describe your overall physical fitness	2.9	28.6	54.3	14.3

The majority of respondents believed that their general health and overall physical fitness was either excellent or good. Nine respondents were receiving treatment for a health related problem at the time of completing the questionnaire. One respondent reported a serious, potentially life-threatening disorder.

9.0 PSYCHOLOGICAL WELL-BEING

The point prevalence for major depression in the adult population assessed across approximately 20 studies which have been conducted since 1980 was approximately 3 per cent (Wittchen et al. 1994). The reported six month to one year prevalence rate was approximately 6 per cent. The range across studies was from 2.6 per cent to 9.8 per cent. Prevalence rates for anxiety disorders in the adult population have been estimated at between 7 per cent and 15 per cent (Freedman 1984).

9.1 Anxiety

Table 16 presents the item content and distribution of scores for the seven items included in the DSSI measure of anxiety. Respondents were asked to read each item and tick the box which most closely represented how they had been feeling in the last week.

Previous studies have reported the occurrence of symptoms of anxiety and depression. Additionally, these symptoms are associated with significantly lower levels of well-being in the partners/wives of men who have a home and away lifestyle typical of Great Barrier Reef pilots (Morrice & Taylor 1978; Taylor et al. 1985 Rigg & Cosgrove 1994). Symptoms of anxiety and depression have also been used to classify sufferers of 'Intermittent Husband Syndrome' (Morrice & Taylor 1978; Taylor et al. 1985; Rigg & Cosgrove 1994). In this study two brief self-report measures were used to assess the level of psychological well-being of the respondents. These were the DSSI (Foulds & Bedford 1978) seven item measures of anxiety and depression.

Table 16

Distribution of scores for the seven items comprising the DSSI measure of anxiety

Item	All the time	Most of the time	Some of the time	Rarely	Never
	%	%	%	%	%
1. I have been worried about every little thing*	5.9	0.0	38.2	20.6	35.3
2. I have been so worked up that I could not sit still*	2.9	0.0	8.8	26.5	61.8
3. For no good reason I have had feelings of panic**	0.0	0.0	12.1	21.2	66.7
4. I have had a pain or tense feeling in my neck or head	5.9	2.9	23.5	20.6	47.1
5. Worrying has kept me awake at night	2.9	2.9	17.6	32.4	44.1
6. I have been so anxious that I could not make up my mind about the simplest thing.	2.9	0.0	11.8	17.6	67.6
7. I have been breathless or have had a pounding of my heart.	0.0	0.0	8.8	20.6	70.6

Missing values *n=1; ** n=2.

The scores for all items were skewed towards the end of the scale indicating normality. However, a small number of respondents scored towards the negative end of the scale.

A response of either 3, 4, or 5 (that is, a report of experiencing a symptom, some, most or all of the time) to any item was considered equivalent to experiencing a particular symptom. On this basis, the most frequently occurring symptoms of anxiety included 'worrying about every little thing' (44%) 'having a pain or tense feeling in the neck or head' (32%) and 'being kept awake at night due to worry' (23%). Previous work examining the psychosocial effects of frequent partings on off-shore wives revealed that these wives experienced greater levels of anxiety than a comparative group of onshore wives. However, the increased anxiety occurred only while their husband was off shore (Taylor et al. 1985). Additionally, the levels of anxiety associated with partings and reunions tended to decrease as wives became more 'experienced'; that is, had been with their partner for longer periods of time (Taylor et al. 1985).

9.1.1 Construction of the Scale

The scale was scored on a five point scale. A response of 'all the time' received a score of 5 and a response of 'never' received a score of 1. A high score indicated higher levels of anxiety. The measure was constructed by combining categories 1 and 2 (no symptoms) and 3, 4, 5 (experiencing a symptom). Those respondents who reported experiencing a symptom scored 1 and those who did not scored 0. The summed measure had a potential range of 0 to 7; the actual scores ranged from 0 (16 respondents) to 5 (two respondents). Five

respondents or 14 per cent of the sample reported experiencing 4 or more symptoms and can be considered to be experiencing high levels of anxiety.

9.2 Depression

Table 17 presents the item content and distribution of scores for the seven items included in the DSSI measure of anxiety.

Table 17

Distribution of scores on the seven items comprising the DSSI measure of depression

Item	All the time	Most of the time	Some of the time	Rarely	Never
	%	%	%	%	%
1. I have been so miserable that I have had difficulty sleeping*	2.9	5.9	17.6	20.6	52.9
2. I have been depressed*	2.9	5.9	17.6	29.4	44.1
3. I have gone to bed not caring if I never woke up*	0.0	2.9	2.9	11.8	82.4
4 I have been so low in spirits that I have sat up for ages doing absolutely nothing.*	2.9	5.9	0.0	14.7	76.5
5. The future seems hopeless*	2.9	0.0	17.6	11.8	67.6
6. I have lost interest in just about everything	3.1	0.0	6.3	25.0	65.6
7. I have been so depressed I have thought of doing away with myself	0.0	0.0	2.9	11.8	85.3

Missing values * n=1.

The distribution of scores on this measure of depression was skewed towards the end of the scale indicating normality. However, a small number of respondents scored towards the negative end of the scale. By combining responses where respondents have reported the experience of a symptom "all", "most" or "some of the time", the most frequently occurring symptoms of depression included feeling 'so miserable that I have difficulty sleeping' (26%); feeling 'depressed' (23%) and feeling that 'the future seems hopeless' (20%).

9.2.1 Construction of the Scale

The scale was scored on a five point scale. A response of 'all the time' received a score of 5 and a response of 'never' received a score of 1. A high score indicated higher levels of anxiety. The measure was constructed by combining categories 1 and 2 (no symptoms) and 3, 4, 5 (experiencing a symptom). Those respondents who reported experiencing a symptom scored 1 and those who did not scored 0. The summed measure had a potential range of 0 to 7; the actual scores ranged from 0 (22 respondents) to 6 (one respondent). Three

respondents, or approximately 9% of the sample reported experiencing 4 or more symptoms and can be considered to be experiencing depression. By way of comparison, the point prevalence of major depression in the adult population across approximately 20 studies conducted since 1980 was approximately 3% (Wittchen et al. 1994).

10.0 Summary of Results

Both quantitative and qualitative methods were used in this survey of the wives/partners of Great Barrier Reef pilots. The survey questionnaire covered 17 topics and comprised 100 items. The main issues examined were: demographics; industry specific questions; the home and away nature of pilotage work; marital satisfaction; social support, general health and fitness and psychological well-being.

The majority of women participating in the present study were married, well educated and approximately 70% were employed. Approximately 23% had at least one child aged 18 years or less. On the basis of the qualitative data it was evident that for many of these women, participation in the paid workforce was directly related to the deregulation of the marine pilotage industry and the resultant reductions in income and financial stability.

The physical risks and fatigue associated with piloting work were of concern to the majority of women. Qualitative data indicated that the wives/partners of pilots believed that much of the stress that pilots were under was attributable to the deregulation of their industry and competition between the pilotage groups.

Financial issues related to changes in income structure and regularity of income were of central concern to these women, as were concerns about the security of pilotage work. These anxieties were also evident in the qualitative data where comments focused on the increasing costs pilots are forced to bear, as well as delays in payment for work completed. Financial concerns were linked to increased levels of stress within some families. Extended periods ashore, although perceived as beneficial by some respondents, also led to stress, particularly in relation to financial stability.

A number of women commented on the previous prestige associated with piloting and made the point that the lowering of qualifications for pilots, deregulation and a drop in income had led to a loss of prestige for the profession. Some believed that lower qualifications for pilots increased the already significant risks associated with the profession and the environment.

The home and away nature of pilotage work was linked to the experience of stress by the majority of participants, at least some of the time. Wives/partners tended to cope with stress through altered eating patterns, rather than by increased levels of smoking, drinking or the use of social drugs. However, during periods of stress women tend to respond by becoming anxious or depressed (Najman 1995). From the two measures of psychological well-being used in this study approximately 14% of the sample were anxious at the time of the study and 9% could be considered depressed. When appraised in the context of available normative data, this level of depression was quite high.

A number of sources of social support were assessed in the present study. These were marital satisfaction, structural support, tangible support, affectionate support, positive social

interaction and emotional and informational support. Stressful interpersonal relationships can impede personal well-being. The majority of participants expressed satisfaction with their marital relationship, however, at least 9% of the sample expressed considerable dissatisfaction with their relationship.

Respondents expressed the least concern about affectionate support. A substantial minority of respondents expressed concern about levels of support on the other three measures: tangible support, positive social interaction, and emotional or informational support. This result may indicate that these women do not require as much affectionate support as support in other areas. From the qualitative data it appears that those women who live close to their families report a higher level of support than do those women who have moved away from their families because of their partner's work. This lack of support may be exacerbated by having young children.

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Appendix 2

Cronbach's alpha coefficient were calculated to assess the reliability of each of the aggregate scores. The procedure is widely used for this purpose since it uses a range of statistical characteristics from the raw data. An alpha coefficient of over 0.65 is generally acceptable.

Table 2a shows the values for Cronbach's alpha coefficients for scale items

Item	Cronbach's coefficient alpha
Industry specific factors	
Concern for physical and mental stress of partner	0.92
Concern for long term financial issues	0.86
Dyadic adjustment (Spanier)	
Marital satisfaction	0.83
Social support (Medical Outcomes Study)	
Tangible support	0.95
Affectionate support	0.86
Positive social interaction	0.96
Emotional or informational support	0.98
Psychological well-being (The Delusions Symptoms States Inventory)	
Anxiety	0.92
Depression	0.84

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