

**SEAFARERS' WIVES AND INTERMITTENT HUSBANDS-
SOCIAL AND PSYCHOLOGICAL IMPACT OF A SUBGROUP
OF NORWEGIAN SEAFARERS' WORK SCHEDULE ON THEIR
FAMILIES**

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ABSTRACT

Objective – To examine the psycho-social impact of work schedules (absence from home) on the families of a subgroup of Norwegian seafarers as reported by their wives (sea wives). Their husbands worked 4-6 weeks on and 4-6 weeks off Norwegian-registered multipurpose vessels (MPV) supporting the off-shore oil industry.

Methods – Questionnaires addressing demographic characteristics, marital satisfaction, social support, subjective health and psychological well-being were

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distributed to sea wives and controls .The response rate was 57% (192/336) for sea wives and 39% (45/114) for controls

Results – There was no difference in demographic characteristics between sea wives and controls except that the sea wives were younger ($p < 0.01$). No differences between sea wives and controls were found with regard to the quality of marital relationships, the subjective evaluation of own health, or mental well-being. Two percent of sea wives and controls had scores suggesting severe depression. In some respects, the sea wives had less social support than the controls. However, the majority of sea wives were content with their families' life style.

Conclusions – The MPV seafarers' absence from home in a 4 weeks on and 4 weeks off (or a 6 weeks on and 6 weeks off) rotation schedule appears to be well tolerated by their families. However, being alone for weeks at the time may exaggerate acute and chronic shore-side problems, and some sea wives may feel a need for more social support during their husbands' absence.

INTRODUCTION

International shipping is characterized by the seafarers' absence from home for many months to years at the time. Such a life style can be a problem both for the seafarer and his family [1-6]. For Norwegian seafarers involved in foreign trade, conditions have improved during the last decades. Today they mostly work schedules like 4 months on – 2 months off or 3 months on – 3 months off the ship. North Sea oil rig workers have even shorter contracts, 2 weeks on and 3-4 weeks off the rig.

Seafarers on Norwegian-registered multipurpose vessels (MPV = standby, supply, and subsea, including seismic, ships) supporting the off-shore oil industry is an occupational group somewhere in-between traditional mariners and oil workers [6], with work rotations 4-6 weeks on and 4-6 weeks off. In theory, such relatively short husband absences should reduce the stress of those left behind [5]. However, the so-called 'Intermittent Husband Syndrome', a triad of anxiety, depression and sexual difficulties, was based on findings in Scottish off-shore workers' wives, evaluated after psychiatric referral [7]. This syndrome has also been reported in other occupations with short (<3 weeks) husband absences, like Australian marine pilots' wives [4] and expatriate aircrew wives in Hong Kong [8].

Compared to traditional foreign trade seafaring, Norwegians working on MPVs have a high degree of job security, modern ship-to-shore communication and shorter periods at sea. The aim of our study was to examine the social and psychological impact

that these seafarers' work schedules had on their families, as reported by their wives. The 'home-work interface' is considered a chief occupational stress factor in seafarers [3], and identifying negative factors may enable companies and authorities to initiate counteracting measures.

MATERIALS AND METHODS

Participants

We compared sea wives (SW) and a control group (Ctr). The sea wives comprised 336 wives or cohabiting female partners of male seafarers working aboard all seagoing vessels of two shipping companies based in southwest Norway. Their MPVs supported offshore oil business worldwide, but mostly in the Norwegian waters. Some ships were often in port, others not, but all had satellite communication and internet access, and cell phone coverage when near oil rigs and ports. All seafarers from one company and most from the other worked 4 weeks on – 4 weeks off; the rest worked 6-6-week shifts.

The control group comprised 114 wives and cohabiting partners of land-based workers of a company supplying and supporting the off-shore industry from on-shore bases along the Norwegian coast line; a company expected to have a work force with similar demographic and educational background as the seafarers.

Questionnaire distribution and reminders

Questionnaires, together with detailed information and letters of consent to participate, were distributed to sea wives and controls by mail. Two reminders were sent two weeks apart. Participation in the study was voluntary and anonymous.

Response rates

A total of 237 persons (53%) returned completed questionnaires: 192/336 sea wives (57 %) and 45/114 controls (39 %).

The Questionnaire

The questionnaire was developed to address the following issues among the wives: demographic characteristics, marital satisfaction (dyadic adjustment), social support, subjective health and psychological well-being, particularly the experience of anxiety and depression. For comparison, it was based on the questionnaire used by Parker et al. [4]. The questionnaire comprised 64 questions divided into 6 subsets answered by both groups. An additional subset of 27 questions was answered by sea wives only. The subsets were:

1. Demography: Ten questions about the wives' age, civil status, education, work situation, number of children and their ages.

2. Influence of husband's job: Nine questions regarding concern about their husband's work situation (physical and mental demands on the husband from his job and worries about his job security). The responses were rated on a 6-point Likert scale ranging from 'Very definitely not a concern' to 'Very definitely a concern' (1-6).

3. Marital satisfaction: Seven questions from the Spanier Dyadic Adjustment Scale (Satisfaction Subscale) were used to assess the quality of the couples' relationship. The responses were rated on a 5-point Likert scale from 'all the time' to 'never' (1-5) [4].

4. Social support: Twenty-one questions from the 'Medical Outcomes Study Social Support Scale' [9] were used to assess the levels of physical assistance, affectionate support, positive social interaction, and emotional/informational support [4]. The responses were rated on a 5-point Likert scale from 'never' to 'always' (1-5).

5. Subjective health: Two questions about subjective health and general condition were rated on a 4-point Likert scale from 'poor' to 'excellent' (1-4), and one question about present treatment was answered No or Yes (+ details).

6. Psychological well-being: The HADS questionnaire (Hospital Anxiety and Depression Scale [4,10] comprises 7 questions about anxiety and 7 about depression. Respondents were asked to rate their feelings during the last week on a 4-point Likert Scale from minimum to maximum symptom level (0-3). One item concerning depression ('I feel cheerful') was omitted by mistake. Sum scores were calculated for the HADS questionnaire (0-3 points per item). Valid HADS scores for each subscale were defined as having answered at least five of seven items. Since one question was lacking in the depression (HADS-D) subscale, this was treated as missing and just one additional missing question was accepted. When one or two answers were missing values on a HADS subscale, the sum score was adjusted by multiplying by 7/6 or 7/5, respectively. Possible scores ranged from 0 to 21 for each subscale. A score of 0 to 7 for either subscale was regarded as being in the normal range, a score of 8 to 10 being just suggestive of the presence of the respective state, and more than 10 indicated probable presence ('case-ness') of the mood disorder [11].

Furthermore, the wives were asked about any self-destructive or suicidal thoughts during the last 12 months (Yes/No).

7. Impact of seafarer family life style: Twenty-five questions should be answered only by the sea wives to evaluate how the periodic absence influences the life style of wife and children [4]. The answers were rated on a 4-point Likert scale from 'never' to 'always' (1-4). The questions, presented in Tables 2-5, examined the effects of stress on the life of the children and the wife, general areas of concern and coping strategies in his absence, as well as the impact that the seafarers' work schedule has on their families.

8. Written comments: The questionnaire also provided space for additional comments.

Statistics

The statistical analyses were performed by the Statistical Software for the Social Sciences (Version 14.0 for Windows, SPSS Inc., Chicago, IL, USA). The groups were compared by chi-square tests for categorical variables. Logistic regression was performed after dichotomizing several of the outcomes from the questionnaire. Both crude and age group adjustments were done to compare risks in sea wives and controls. For all analyses two-sided tests were used, and statistical significance was defined as $p < 0.05$.

Ethics

The study was conducted with approval from 'The Regional Committee for Medical Research Ethics (REK) West'.

RESULTS

1. Demography: The age distribution differed significantly between the groups ($p < 0.01$). Sea wives were younger than the controls. 81% of the sea wives versus 58% of the control were 50 years or younger (Figure 1).

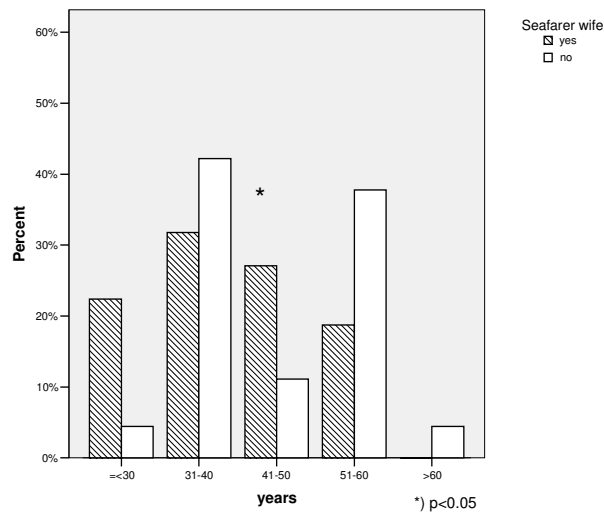


Figure 1. The age distribution for seafarers' wives and controls (wives with land-based husbands)

Most wives were ethnic Norwegians (SW: 94%; Ctr: 98%), most were well educated (in both groups 84% had > 10 years education), most were employed (SW: 76%; Ctr: 87%), and among the unemployed, many considered future employment (SW: 59%; Ctr: 83%). Most wives had no previous marriage (SW: 89%; Ctr: 87%), and most had one or more children (SW: 88%; Ctr 93%). Except age, no significant (NS) differences were seen in any of the assessed socio-demographic characteristics.

2. Influence of husband's job: Both groups were concerned to the same degree about how the jobs affected their male partners (job-related physical and mental demands and health risks). Concern about job security was low in both groups, but when the scores were dichotomized, more sea wives were concerned (SW 25%; Ctr 9%; (OR=3.28, p=0.03). This was borderline significant after adjusting for age group.

3. Marital satisfaction: The quality (satisfaction) of the couples' interrelationship showed no differences between sea wives and controls. After dichotomizing, just one of the questions showed significantly group differences: The risk of not trusting their husbands was significantly less among sea wives (SW 2%, Ctr 9%; OR 0.22, p=0.04), a difference which, however, disappeared after adjusting for age group.

4. Social support: Chi-square tests showed group differences for four of 21 questions (Table 1; underlined statements). When the scores were dichotomized (reduced [1-3] and acceptable [4-5]) adjusted odds ratio showed that sea wives had an increased risk for reduced support in seven questions after adjusting for age group (Table 1).

Table 1. Significant risk of reduced social support* in the wives of Norwegian seafarers on multipurpose vessels as reported by 192 ‘sea wives’ compared to 45 controls in 7 of 21 questions

Respondents with reduced social network*						
	Sea wives	Controls	OR	p	OR	p
	n (%)	n (%)	(crude)		(adj)**	
How often do you have someone:						
who shows you love and affection	43 (22.6)	2 (4.7)	6.00	0.02	6.50	0.01
to have a good time with‡	81 (42.6)	6 (13.3)	4.83	0.001	5.86	0.001
to confide in	61 (32.3)	7 (15.6)	2.59	0.03	2.80	0.02
who hugs you ‡	110 (58.8)	9 (20.0)	5.71	<0.001	6.18	<0.001
to relax with‡	98 (52.1)	13 (30.2)	2.51	0.01	2.59	0.01
to give you good advice in a crisis	73 (38.6)	10 (22.7)	2.14	0.05	2.41	0.03
to love you and make you feel wanted‡	62 (32.6)	5 (11.4)	3.78	0.01	3.54	0.01

* defined as scores 1-3 on a scale ranging from ‘never’ = 1 to ‘always’ = 5.

‡ chi-square tests showed group differences.

** odds ratios adjusted for age group

5. Subjective health: Evaluation of their own health showed no differences in the two groups: the majority of sea wives and controls considered their general health to be good or excellent (77% versus 82%) and to be in good or excellent condition (67% versus 73%), while 21% of the sea wives and 29% of the controls at the time of the study were under medical treatment (all group differences: NS).

6. Psychological well-being: Mental well-being could be evaluated by HADS in all responders except 3 sea wives. No differences could be seen between the two groups. Regarding anxiety, most were within normal range (SW: 71%, Ctr: 78%; NS), while 9% of the sea wives and 11% of the controls (NS) had scores indicating probable ‘case-ness’. Regarding depression, even more were within normal range (SW: 84%, Ctr: 80%; NS), while only 2 % of both sea wives and controls had scores indicating probable ‘case-ness’.

Although the difference is not statistically significant, it is worth noting that eight sea wives (8/173; 5%), but no controls (0/43), admitted self-destructive or suicidal thoughts within the last year. Reasons given for dark thoughts in comments were: ‘Family illness and death’, ‘serious chronic illness’, ‘midlife crisis, resolved after counseling’, ‘seriously ill child’ and ‘chronic mental problems, worse when alone’. All

eight were ethnic Norwegians, most (7/8) were between 31 and 40 years of age, most (7/8) were employed, and all but one had children. However, only one of them had HADS scores suggesting serious anxiety and depression, while two more were seriously depressed ('case-ness').

7. Impact of seafarer family life style (Sea wives only):

The distribution of scores regarding the effects of stress on the life of the children and sea wives is shown in Table 2.

Table 2. Distribution of scores across seven items examining the effects of stress on the life of the children and the wife of Norwegian seafarers on multipurpose vessels as reported by 192 'sea wives'				
How often do you:	Never %	Sometimes %	Often %	Always %
Experience stress about the length of your husband's on-shore periods?	62	24	13	1
Experience stress over uncertainty about your husband's time of departure?	34	31	30	5
Experience stress over uncertainty about how long your husband will be away from home?	45	46	8	1
Experience stress when your husband is due to return to sea?	15	50	19	16
Experience stress when your husband arrives home?	48	41	7	4
Think your children are stressed when dad is due to return? (n=168)	31	45	16	8
Think your children are stressed when dad arrives home? (n=167)	60	36	4	<1

The length of the husband's periods at home and at sea seemed of little concern. One third felt often stressed just prior to their husbands' departure and over uncertainty about their husbands' time of departure, while less felt stressed often (11%) on his return. They thought that their children were less stressed than themselves just prior to their father's departure and on his return.

The distribution of scores regarding concern about household security, loneliness and having to cope with crises is shown in Table 3.

Table 3. Distribution of scores across the three items examining general areas of concern, as reported by 192 wives of Norwegian seafarers on multipurpose vessels supporting the offshore oil industry

When your husband is at sea, how often do you:	Never %	Sometimes %	Often %	Always %
Experience concern over household security?	43	49	6	2
Find that loneliness is a concern?	25	57	14	4
Experience concern over having to attend to crises on your own?	14	66	13	7

Most sea wives were concerned about these issues at least sometimes or often. Of greatest concern was attending to crisis situations while their husband was away.

The distribution of scores regarding different ways of coping with stress is shown in Table 4.

Table 4. Distribution of scores across seven items examining ways of coping with stress during their husbands' absence, as reported by 192 wives of Norwegian seafarers on multipurpose vessels supporting the offshore oil industry

When your husband is at sea, how often do you:	Never %	Sometimes %	Often %	Always %
Have difficulty coping?	39	56	3	2
Use medication to help you cope?	97	2	1	0
If smoking, smoke more? (n=146)	80	16	3	<1
If drinking alcohol, drink more alcohol? (n=176)	96	3	<1	0
Tend to eat more?	81	16	2	3
Tend to eat less?	44	34	15	7
Feel that a support group for sea wives would help you cope?	62	31	4	3

The majority of women (61%) admitted to sometimes having difficulty coping during their husband's absence, about one third felt that a support group of sea wives would sometimes help them cope, while 97% never used medication to cope. Very few reported that they often smoked more or used more alcohol. Eating patterns were more affected; 81% never tended to eat more, while 44% never tended to eat less.

Table 5. Distribution of scores across ten items examining the impact of seafarers' work schedule ('home-and-away' life style) has on their families, as reported by 192 wives of Norwegian seafarers on multipurpose vessels supporting the offshore oil industry

How often do you:	Never %	Sometimes %	Often %	Always %
Feel your relationship is strongly at risk because your husband is working away from home (e.g. adultery)?	79	19	<2	<1
Wish your husband had a shore-based job?	17	63	15	5
Find that your husband's work disrupts your sleep?	59	36	3	2
Find that your husband's work limits your social life?	28	47	20	5
Find that your husband's work limits your career and work?	54	28	14	4
Find that additional free time you are able to spend with your husband after a tour of duty is a positive aspect of his work?	23	60	14	3
Enjoy having time to pursue your own interests?	22	52	21	5
Find that the decisions you make cause problems when your husband returns?	59	32	9	0
Find that you give in following a fight because you know your husband is about to go away?	59	35	6	0
Find that the home and away basis of your husbands work is stimulating to your relationship?	13	57	22	8

One fifth of the sea wives felt sometimes that their relationship was at risk because their husband was working away from home. One fifth also often wished that their husband had a job on shore. One fourth felt that their social relationships often suffered, and one fifth reported that their career often was limited because of his job. Five percent had often disturbed sleep because of his job.

For the majority of the sea wives, 'having two lives' had some benefits, like more time to pursue their own interests in their husband's absence, and only 13% found the seafarer life style never to be stimulating to their relationship.

DISCUSSION AND CONCLUSIONS

Our study shows that most wives of the MPV seafarers working 4-4 or 6-6 week schedules were well adjusted to their families' life style, like shown in wives of offshore oil workers [12] and in marine pilots' wives [4]. Their overall health and

psychological well-being were similar to a (significantly older) control group of land-based workers. Statistical analyses with adjustment for age group did not change this conclusion. Both groups were concerned to the same (low) degree about how the jobs affected their husbands while at work (job related physical and mental demands and health risks). More sea wives than controls had concerns about their husband's job security. According to their comments, their main worry was that the MTVs might be re-registered to 'flags of convenience' in order to replace Norwegian seafarers with less expensive workers.

The marital relationships of the two groups were not differently affected. More sea wives trusted their husbands than the controls, but the significant difference disappeared after adjusting for age group. However, MPVs are rather 'temptation-proof'; with strict alcohol policies and hardly any shore leave, the well-known image of 'a drunken sailor with a girl in every port' is long gone.

The sea wives' social support was in some respects impaired, as demonstrated by less opportunity than the controls to have a good time and relax with persons they love, who make them feel wanted, and who hug them. With husbands absent for half of the time this is as expected. However, the age difference between sea wives and controls seems to contribute. Analyses adjusted for age group showed more significantly different responses. The explanation for this difference may be that the younger sea wives have not had enough time to establish a sufficient social support network. Family, good friends, work, school and kindergarten are factors that may reduce the feeling of social isolation, and the fact that most sea wives had children and were employed is likely to have provided practical social support not different from that of the controls.

Loneliness was rarely a problem, and only a few sea wives ever used medication to cope. Just a few often ate more (5%), smoked more (4%) and/or consumed more alcohol (1%) in their husband's absence. However, one fifth often ate less, but comments suggest that this may be a matter of convenience more than a symptom: more emphasis was put on meals when both spouses were present. Among Australian marine pilots' wives, 23% ate more, while 47% ate less when their partners were away [4].

'The Intermittent Husband Syndrome' was derived from clinical observations following psychiatric referral of Scottish oil workers' wives at a time of extensive oil exploration [7]. Later, after off-shore work had moved to a production phase, an epidemiological study of oil wives from the same area suggested that the negative psycho-social effects of intermittent husband absence were down to 10 % [13]. Among Australian marine pilots' wives, 9% *were* depressed, compared to about 3% in the adult population [4]. In our study severe anxiety and depression did not differ between sea wives and controls, and only 2% of sea wives (and controls) had HADS scores suggesting severe depression. We identified eight sea wives (5%), but no controls, who

admitted to self-destructive thoughts during the last 12 months. Socio-demographically, they were not different from the other sea wives. According to their comments, they had been depressed for reasons not directly connected with their family life style. However, dealing with severe problems on their own may have aggravated their feeling of despair.

It is worth emphasizing that all the sea wives were still with their husbands at the time of our study. Most of the sea wives had adapted to this life style during several years. Sea wives unable to cope may either have left the relationship, or their husbands have sought land-based jobs [2]. This aspect might have introduced a bias due to a 'healthy worker effect'.

Several sea wives stated, 'I have two lives; both with pros and cons'. Not many (13%) thought that the style never stimulated the couple's relationship. While life for the seafarer is very different at sea and ashore, our study shows that the wives are able to maintain their routines, as stated by others [13,14]. Two thirds rarely felt stressed just prior to their partner's departure, which may seem more surprising than the fact that a third of the wives often or always did so. However, their added comments showed that the seafarer life style also has its downsides, although more like nuisances and frustrations than serious concerns.

An issue well known from international shipping [14] was raised in our study by wives of MPV seafarers working on other continents: their husbands needed 1-2 weeks to recover from long flights and jet lag. Other nuisance factors, known from studies of intermittent husbands [3-5,8], were also pointed out: poorly planned company demands, like sudden reschedules and courses arranged close to holidays important for the family. To improve conditions for the MTV seafarers' families, the wives suggested that the companies should provide more information, arrange social gatherings, help during crisis or illness, arrange baby sitting, reduce absence to 2 weeks, subsidize fees for social events, courses and training, provide better and less expensive (free) ship-to-shore communication, and send greetings, presents or flowers to those alone at home during the holidays.

Like all studies based on questionnaires, ours has its limitations:

- Anonymity makes individual follow-up of responders demonstrating 'case-ness' (severe anxiety or depression) impossible [8], as pointed out by one respondent.
- Some comments suggest that the sea wives' answers might depend upon the time of their response; their situation differs when the husband is at home or away. This view is supported by findings in 'oil wives' where a parting and reunion cycle provided a recurring crisis [12]. Similar findings were reported in submariners' wives [15]. Ideally the questionnaires

should be filled in twice (husband ashore and at sea), but this has shown to be impractical [13].

- In a HADS-study with a 16% response rate Kuijpers et al. [16] stated that ‘a less than 100% response rate will always raise the question whether the persons willing to participate could constitute a biased group.’ Our response rates were 57% for the sea wives and 39% for the controls. The difference is not surprising: the controls had less incentive to participate as the study did not primarily concern them. The response rate of our sea wives is similar to that of an Australian series: 60% of 35 pilot wives [4].
- Control groups are ideally sampled at random and matched for various socio-demographic characteristics. Our control group comprised all wives of employees working ashore for a company servicing off-shore industries. The sea wives and the control group were similar regarding all assessed characteristics but age. The fact that sea wives were significantly younger reflects that seafaring attracts younger men.

In conclusion, the MPV seafarers’ absence from home in a 4 weeks on and 4 weeks off (or a 6 weeks on and 6 weeks off) rotation schedule appears to be well tolerated by their families. Being alone for weeks at the time may exaggerate acute and chronic shore-side problems, and some sea wives may feel a need for more social support during their husbands’ absence.

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