

International SOS
Foundation

THE PSYCHOLOGICAL IMPACT OF REMOTE ROTATIONAL WORK

Dr Rachel Lewis PhD CPsychol

Christian Ferragamo

Dr Joanna Yarker PhD CPsychol



FOREWORD

The unique work and lifestyle of remote rotational workers has long been thought to have a high impact on mental health and wellbeing. It may come with the perks of higher pay, but are the 'golden handcuff's' enough to offset the working environment, with its propensity to be isolating at the best of times. On and off-shore, working pressures and varying shift patterns also add their weight. And this is not to mention the impact of the current pandemic.

Valuable studies have been carried out in various parts of the world focusing on this critical topic, with many collating regional data. With millions of employees carrying out remote rotational work today, the International SOS Foundation undertook a research initiative to assess and provide global insight into the psychological impacts of this particular working mode.

When we first planned this endeavour, the world was not in a pandemic. This has had a huge impact and makes it an ever more relevant topic. Workers found themselves on remote rotation for months longer than they anticipated, often not knowing when they would be able to return home to family and friends. In the light of this, the study exposes just some of the impacts from this current environment.

And, while loneliness and emotional exhaustion may be expected in some respect, the fact that the study reveals that suicidal thoughts are experienced by more remote rotational workers than either, is shocking. Particularly considering the majority of the workforce feel that they are supported by the organisations they work for.

There is a disconnect somewhere – one that needs to be addressed to protect people and save lives.

Within this study, we are exposed to key findings that could help to understand and, importantly, bridge this disconnect. The focused expert insights and response from remote rotational workers themselves is aimed to help organisations/managers with greater insight into the impact on mental wellbeing, and provide a way forward with some of the strategies that can be implemented to protect the workforce.



Dr Rodrigo Rodriguez-Fernandez
Medical Director,
Health Consulting, NCD
Wellness programmes

CONTENTS

1. INTRODUCTION	6
2. METHODOLOGY	8
3. RESULTS	10
3.1. Stage One and Stage Two: Literature review and participant interviews	11
3.1.1. Outcomes of remote rotational work	11
3.1.2. What factors hinder the psychological health of remote rotational workers?	14
Individual factors	14
Social factors	15
Job and organisational factors	16
3.1.3. What factors facilitate the psychological health of remote rotational workers?	18
Individual factors	18
Social factors	19
Job and organisational factors	19
3.1.4. The perceived impact of the COVID-19 pandemic	24
3.2. Stage Three: Survey results	25
3.2.1. Demographic data from the survey	25
3.2.2. Organisational support and provisions for remote rotational workers	27
3.2.3. Psychological implications of remote rotational work: Emotional outcomes	28
Negative outcomes	28
Positive outcomes	32
3.2.4. Psychological implications of remote rotational work: Job/organisational	32
3.2.5. Psychological outcomes of remote rotational work: Family/social/work life	33
Negative outcomes	33
Positive outcomes	35
3.2.6. Psychological outcomes of remote rotational work: Psychosocial/psychosomatic	36
Negative outcomes	36
Positive outcomes	36
3.2.7. Outcomes relating to the COVID-19 pandemic	38
Negative outcomes	38
Positive outcomes	39
3.3. Factors affecting the relationship between remote rotational work and outcomes	40
3.3.1. Factors worsening the experience of remote rotational work	40
3.3.2. Factors improving the experience of remote rotational work	41

4. KEY MESSAGES AND CONCLUSIONS	42
4.1. Changes following the COVID-19 pandemic	46
5. RECOMMENDATIONS	50
5.1. Recommendations for organisations and employers	51
5.2. Recommendations for managers of remote rotational workers	54
5.3. Recommendations for remote rotational workers	56
6. REFERENCES	58



1 INTRODUCTION

Remote rotational work can be understood as a method of employing people in remote areas by transporting them temporarily to the work site (according to a pre-set rotational work pattern) as opposed to relocating employees and their families permanently. Depending on the mode of transport, the work is often referred to as Fly-in Fly-out (FIFO), Drive-in Drive-out (DIDO) or Sail-in Sail-out (SISO). Remote rotational work is not limited to operating in fixed remote areas (such as oil and gas within mining and offshore sectors) but can encompass maritime workers and seafarers as well.

Remote rotational work has proved to be a lucrative business for many employees, employers and communities alike; particularly in geographical areas rich in natural resources (Parker et al. 2018). Indeed, researchers have

suggested that endeavours in offshore oil and gas, as well as mining, play an important role in both the global and local economy (Nielsen et al.(a) 2013, Parker et al. 2018). For instance, the resource industry is central to Western Australia's economy, with mining contributing 29% of the gross state product in 2016-2017. Also, seafaring has shown positive trends in both global demand and supply over the past decade, particularly within China, India and the Philippines, as well as in several European countries (Slišković & Penezić, 2015).

Despite its potential for positive impact upon the economy, remote rotational work can be deleterious to employee psychological health. Mental health issues such as depression, anxiety and burnout have been found to be particularly prevalent in this occupational group

when compared to the general population. Certain factors specific to remote rotational work (including compressed rotas, work-family conflict, family and partner-related worries) have been found to predict mental health outcomes; as have psychosocial factors found to be more common in these workers, such as binge drinking, smoking and drug use (pharmaceutical and illegal). Particularly concerning is the finding that many remote rotational workers have a demographic profile (e.g. gender and age) in which suicide likelihood is greater (Parker et al. 2018; Xiao et al. 2017). Accompanying these demographic risk factors are a number of reported occupation-specific factors which have all been linked to suicidal thoughts, such as mental health-related stigma, separation from family, difficulties with psychological adjustment, reduced autonomy, poor communication infrastructure, bullying and loneliness (Bjerkan, 2011; Parker et al. 2018; Sampson & Ellis, 2019).

Although the majority of research on this occupational group has focused not on psychological health, but on the impact of shift patterns and fatigue on performance and error risk, there has been a recent increase in research attention towards the mental health of remote rotational workers. The topic has also attracted governmental and policy-level attention; for instance through a West Australian Parliamentary Inquiry (resulting in a large-scale study commissioned by the West Australian Mental Health Commission) and the OGUK (UK trade union for Oil and Gas) highlighting worker mental health and wellbeing as a key priority in their 2019 report.

Despite research attention, there is still a need for organisational and behavioural shifts in order to better manage the mental health of this population. Evidence from the OGUK report (2019) revealed that less than 20% of employers in the industry have a mental health-at-work plan or policy in place, and only around 30% routinely monitor employee health and wellbeing. Access to internet and communication channels has been found to reduce the risk of suicidal thoughts in remote rotational workers (Parker et al. 2018); however, these are not provided in all remote work environments. For instance, one study

(Sampson & Ellis, 2019) found only 70% of seafarers had access to the internet.

Although comprising a large body, research into this worker population has tended to focus on just one sector (such as offshore oil and gas) or one location (such as Western Australia) and to look at one psychological factor (such as high-risk sexual behaviours). Furthermore, research has tended to focus on the experiences of workers on rotation, with only scant attention to the psychological experience and factors both before a rotation, and whilst off rotation. Given the composition of this body of research, there has hitherto been no basis for overarching recommendations or guidelines for the protection of mental health in remote rotational workers. There is a need to assimilate and synthesise our understanding of the factors causing mental ill health across remote rotational workers more broadly (both in terms of sector, location and duration of experience), and in so doing, develop recommendations for the workers themselves, for their managers, and for organisations. This, to our knowledge, will be the first research of its kind to both synthesise existing literature and gather perspectives for both experts and the remote rotational workers themselves.

Research aims

The aims of this research is:

- To enable stakeholders who have a duty of care to remote rotational workers to make evidence-based adjustments and recommendations to their employees for this type of work.
- To enable organisations to increase awareness among all their employees about the psychological implications of remote rotational work, and therefore to mitigate the risks.
- To increase the safety, health, security and wellbeing of remote rotational workers by understanding more about the psychological implications of this type of work, both on rotation and off rotation.

2

METHODOLOGY

An evidence-based-practice approach was taken to the research, meaning that evidence is taken from a number of sources – academic literature, practitioner literature, the local context, experts and those affected (in this case remote rotational workers). Evidence from these five sources was assessed in three stages and combined to develop the most accurate picture on which to base recommendations. Figure 1 lays out the stages of the research.



FIGURE 1. METHODOLOGY FLOW CHART



3 RESULTS



3.1. Stage One and Stage Two: Literature review and participant interviews

3.1.1. Outcomes of remote rotational work

From the systematic review of the literature, 36 studies (33 academic and three practitioner) were identified that related to the psychological implications of remote rotational work. Research covered 14 countries and regions, across seafarers, miners, oil and gas, wind, and construction workers. 12 papers were from Australia; 10 from Norway, three from the UK, three from China; and one from each of the following: Croatia; European multinational; Germany; Ireland; the Middle East; the Netherlands; and Vietnam. The majority of research has focused on the offshore oil and gas industry (17 papers), seafaring (eight papers) and mining (four papers), with only one paper each from construction and wind. Only two papers studied workers from across multiple sectors. Most research conducted in this area has been cross-sectional and quantitative in nature, with 10 studies exploring outcomes over time. Three papers (all practitioner papers) used a mixed methodology. A full list of the papers included within the evidence review is included in the reference section.

The findings from the evidence review were grouped into four categories, demonstrating the psychological outcomes for remote rotational work are: i) emotional outcomes; ii) family, social and work-life outcomes; iii) psychosocial/psychosomatic outcomes; and iv) job- and organisation-related outcomes.

Figure 2 summarises the findings from the evidence review and the interviews, and lays out the negative psychological outcomes associated with remote rotational work identified in the evidence review. The majority of the studies focused on the emotional aspects of remote rotational work, such as stress, anxiety, burnout, fatigue, depression and suicidal thoughts. This was followed by psychosocial impacts,

such as psychosomatic health complaints, in particular sleep disturbances. Only five papers explored the impact of remote rotational work on the family such as behavioural and adjustment issues in children, and impact upon the spousal relationship. Fewer papers explored organisational issues but those that did explored negative outcomes such as intention to leave and perceived risk; along with positive outcomes which in particular focused on the community on-rotation and sense of comradeship.

Although this body of evidence predominantly investigated the negative psychological outcomes of remote rotational working, a subset of research also explored factors associated with psychological benefits, reflected in each of the four outcome categories. Emotionally and psychosocially, there were factors found to contribute to job satisfaction and sleep quality in this population, elaborated on in the next section of this report. With regards to job- and organisation-related outcomes, a wide range of positive psychological outcomes were explored, ranging from work enjoyment and work involvement to feelings of community and social inclusion at work.





















Data obtained from the stakeholder interviews was largely in accordance with the evidence review findings, with some exceptions. While the reviewed literature indicated that suicidal ideation was prevalent in the remote rotational worker population, this view did not arise in the stakeholder interviews. Interviewees did mention some specific emotional struggles, although these were mainly related to anger towards the organisation and negative feelings of being stuck out at sea. The academic literature had also explored drivers for job satisfaction, wellbeing and happiness; yet contributors to positive affect on the job was not widely spoken about in the interviews. Secondly, from a family perspective, some of the literature had shone a light on the negative impact remote rotational work may have on the

family, both regarding children (e.g. behavioural or emotional adjustment problems) and the spouse (e.g. suspicions or resentment). This pattern was not supported by the interviews. On the contrary, the family was seen as a major source of support, both whilst on- and offshore. There was even evidence to suggest that remote rotational work could potentially enhance career-advancement opportunities for the spouse, with one interviewee sharing;




“Because I’ve been working away and have been providing childcare for three weeks, she could go and do training at universities and degrees and all sorts of things and further her development which has been helped by me working away.”



FIGURE 2. PSYCHOLOGICAL OUTCOMES OF REMOTE ROTATIONAL WORK

EMOTIONAL	FAMILY/SOCIAL/ WORK-LIFE	PSYCHOSOCIAL/ PSYCHOSOMATIC	JOB AND ORGANISATION RELATED
<p>NEGATIVE:</p> <p> Burnout/emotional exhaustion (on shift and when returning home)</p> <p>Anxiety</p> <p>Fear</p> <p>Isolation and loneliness</p> <p>Irritation</p> <p>Sadness</p> <p>Depression</p> <p>Stress</p> <p>Unsafe sex practices with prostitutes</p> <p> Suicidal ideation</p> <p>Unhappiness</p> <p> Lack of recovery</p> <p>Anger</p> <p>Feeling stuck out at sea</p> <p>Feelings of wasting time</p> <p>POSITIVE:</p> <p> Job satisfaction</p> <p>Wellbeing (psychological, emotional and social)</p> <p>Happiness</p> <p> Excitement</p> <p>Having fun</p>	<p>NEGATIVE:</p> <p> Work-family/life conflict</p> <p>Absence from family (including lack of ability to provide family support, psychological issues for partner)</p> <p>Negative impact on social relationships for worker</p> <p> Children's behavioural problems</p> <p>Children's emotional mal-adjustment</p> <p>Children's psychosocial wellbeing (i.e. depression and anxiety)</p> <p>Suspicious and resentment towards partner</p> <p>Detoriation and dissolution of partnership</p> <p> Negative impact on social relationships both for worker and spouses</p> <p>POSITIVE:</p> <p> Social relations</p> <p>Family functioning</p> <p> Study and career advancement for spouse</p>	<p>NEGATIVE:</p> <p> Fatigue (longer term and acute)</p> <p>Insomnia</p> <p>Sleep problems (along with deprivation, sleepiness and tiredness)</p> <p>Stomach ache</p> <p>Orthopaedic complaints</p> <p>Increased heart rate</p> <p> Hot flushes</p> <p>Dizziness</p> <p>Somatic health complaints</p> <p>Abnormal cortisol levels</p> <p>Headache</p> <p>Fever</p> <p> Forgetfulness</p> <p>Distractions</p> <p>POSITIVE:</p> <p> Sleep quality</p> <p>Sleep duration</p> <p>Healthy melatonin levels</p> <p> Time passing fast</p>	<p>NEGATIVE:</p> <p> Turnover-intention/intention to quit</p> <p>Performance issues</p> <p> Perceptions of accident risk</p> <p>Team orientation</p> <p> Mistakes and errors made</p> <p>Lack of competence</p> <p>Lack of motivation</p> <p>POSITIVE:</p> <p> Safety climate</p> <p>Work enjoyment</p> <p>Feelings of community and social inclusion/camaraderie at work</p> <p>Morale</p> <p> Self-efficacy</p> <p>Work involvement</p> <p>Enjoyment of camps</p> <p>Work situation-awareness</p>

KEY

-  Outcomes are from evidence review and interviews
-  Outcomes are from evidence review only
-  Outcomes are from interviews only

3.1.2. What factors hinder the psychological health of remote rotational workers?

Individual factors

The literature review found both age and tenure to impact psychological health, although the evidence reviewed were somewhat inconsistent. Interestingly, both younger and older age was associated with psychological difficulties in separate studies carried out on oil rigs. Some evidence suggested that older employees (categorised as being over 50), perceived their psychological health status more negatively than their younger counterparts, whereas other findings indicated that younger age was associated with anxiety. With regards to tenure, results from the research indicated that employees who had been in the same occupational role for more than 10 years had a more negative affect than those who had held the same role for less than ten years. On the contrary, other evidence indicated that employees who had been in service for fewer years were more likely to experience anxiety. This may be indicative of a curvilinear relationship that we observe with many emotional outcomes at work; at first the role is challenging and anxiety-provoking as employees try to adapt to their circumstances and learn the 'rules of the game'; we then see a flattening of psychological symptoms following adaptation and competence; and finally see anxiety and distress rising with more experience when employees have been working in the same role for many years.

Remote rotational workers who were reporting symptoms of mental ill health, such as depression and anxiety, were also more prone to report poorer social relations and sleep. Workers' attitudes towards their jobs also appeared to relate to their mental health. Remote rotational employees who felt they had to stay in FIFO employment due to the financial rewards (referred to as 'golden handcuffs'), experienced higher levels of psychological distress, poorer wellbeing and a worse relationship with their partner.

The research also identified a number of coping mechanisms (including avoidance, distraction and disengagement) that were associated with poor mental health. Disengagement (defined as where your body is at work, but your mind stays at home) was found to be particularly problematic, predicting both poor family functioning and suicide risk. Some remote workers reported that they found it difficult to psychologically detach during their time off, which impaired their ability to recover. This was particularly true for on-call workers and those who experienced heavy workloads.

Interviews. The interviews largely mirrored what had been found in the literature. The academic literature had pointed to existing mental health problems (such as anxiety and depression) being a vulnerability factor, but it was highlighted in the interviews that many remote rotational workers may be from cultures where there is an unwillingness to address or even recognise mental health problems and therefore there may be a lack of identified pre-existing issues. This could pose as a great barrier to help-seeking. One stakeholder interviewee expressed this as

“not having this concept of depression they just feel bad and every disease they say they have - but in reality, they're feeling bad because they're by themselves. They can't really put a name to this disease because it doesn't exist here, the concept of depression doesn't exist here.”



Social factors

Many of the social barriers to psychological health and intention to stay in the organisation were related to the family. Separation from the family was associated with a range of negative mental health outcomes, including depression, anxiety, burnout, poorer wellbeing, and suicide risk. Psychological difficulties in transitioning between on and off time was also linked to poorer family functioning. Worries around marriage/relationship breakdown because of remote work, an awareness of having to leave one's partner to cope with difficulties and decision-making alone, partners' negative attitude towards remote work, and being afraid of one's relationship with children being disturbed due to working remotely, all significantly predicted poorer mental health.

Interestingly, some of the factors which predicted negative mental health outcomes in the FIFO worker (such as work-family conflict) also predicted the same mental health outcomes in the partner. This suggests that barriers experienced by the worker also then have a 'negative ripple' effect into their wider social circle. In addition, aspects related to change in or impact on family circumstances were associated with higher turnover intentions. Although some literature focused on the psychological health of the children of remote workers, findings were inconsistent.

Other social barriers to psychological health in remote workers were centred on what they did in their leisure time and the availability of social activities and resources. Not having access to a landline or internet was associated with significantly worse mental health, wellbeing and increased suicidal risk. This is particularly pertinent given that one British study found that 30% of seafarers did not have internet access whilst onboard.

Although the literature indicated that many remote rotational workers felt they did not have much spare time, there was also evidence to suggest that there is a drinking culture in many remote rotational work environments, with group alcohol consumption found to be the default way of socialising and connecting. Other leisure-time activities included sexual encounters (often unprotected) with local prostitutes. One qualitative study of miners revealed how these sexual practices held greater meaning than solely gratifying sexual desires for the miners who were interviewed. Interviewees said that sex was often used as a coping mechanism (in combination with alcohol) to deal with depression and relative isolation; and to strengthen social status and social networks.

Interviews. Themes identified from the interview data concurred with many of those identified in the literature review. However, the interviews provided some insights which departed from previous research. One insight related to how remote rotational workers spend their time, both off- and on-rotation. While previous research had indicated that people generally did not work off rotation, a number of the interviewees in the present research expressed how they continued to work both during their off-rotation and off-shift phases in addition to their on-rotation work. This work either involved a continuation of the 'day job' working remotely (particularly for those that were more senior), continuation of responsibilities where employees held other roles, such as committee or council membership and training others, and, in some cases, working additional jobs outside of the remote rotational role. This could potentially lead to work overload, having a negative impact on work-life boundaries and ultimately resulting in increased risk of mental ill health. It was also reported that there were inconsistent contractual regulations

depending on job role and location. Some remote rotational workers were not allowed to consume alcohol or visit bars in their spare time during an on-rotation phase. Others were not allowed to leave the site due to safety issues as explained by this interviewee;

I live in a very residential compound with guards etc. I can't go outside without the military protecting me.

These differing regulations led to feelings of frustration and dissatisfaction in employees.

Another aspect which differed between the literature and the stakeholder interviews related to finances. Whereas the academic literature had reported on 'golden handcuffs' which implied that remote rotational workers had become accustomed to a certain lifestyle supported by high salaries, the interviewees expressed a more fundamental pressure to provide for their families. This was particularly true for workers who came from more economically disadvantaged countries.

Job and organisational factors

A wide range of job and organisational factors were reported in the literature to negatively impact psychological health. Irregular working patterns, uneven time rosters (e.g. four weeks on/one week off) and night work were found to produce strain, fatigue and insomnia and to put workers at increased risk for shift work disorder (a circadian rhythm disorder characterised by excessive sleeping and insomnia). The amount of time remote workers spent working in different capacities was also shown to have an impact on psychological health. Overtime and longer on-shift patterns were associated with impaired duration and quality of sleep, as well as greater at- and post-work fatigue. This effect appeared to be particularly pronounced after a period of 14 days on shift. Other universal job stressors such as workload and emotional demands (i.e. suppressing negative emotions or portraying false positive ones) were linked

to emotional exhaustion. The phase of the shift work cycle also appeared important for psychological health. Lowest levels of wellbeing and highest levels of stress tended to be just before or around the start of the on-shift phase, when workers were returning from a period at home. Various factors appeared to influence this, such as anticipated or actual separation from the family or long journeys to get to the site (potentially taking a whole day). As workers then adjusted to the on-site work phase, the tendency was for wellbeing to increase and stress to decrease.

Aspects relating to the job role and contract status also impacted on psychological health in remote rotational workers. Roles associated with poorer mental health included those of contractors, staff working in camp, catering and logistics roles. More widely, job design, such as high demands, work pressure, job insecurity and lack of paid holiday, and career progression prospects played a role in worker ill health. The physical working environment, including poor weather conditions, ergonomics and prevalence of vibration, heat and noise, was also associated with greater stress, poorer mental health and sleep problems. Some workers reported not feeling safe; and a perception of risk was also found to relate both to poor mental health, and to the undertaking of social risk behaviours, such as sex with prostitutes.

The workplace culture for remote rotational workers is also an important consideration. Relational issues with colleagues and managers were associated with poor mental health. Research has found that FIFO workers experience bullying more frequently from both co-workers and supervisors compared to a general population and have witnessed the bullying of others more frequently. Evidence suggests that the predominant culture for remote rotational workers is often a male-dominated, macho one, where voicing mental health issues is frowned upon. Indeed, mental health stigma was found to be highly prevalent, and to be more strongly predictive than bullying of distress, burnout, reduced wellbeing and suicide risk.



Interviews. In relation to job and organisational factors, the interviews added different insights to those of the evidence review. Interviews elucidated how work-related activities often spilled into the workers' spare time, whether on- or off-rotation. Interviewees reported how remote rotational workers typically travelled to and from work in their free time, which in some cases could take days. Workers were also said by interviewees to commonly engage in work related catch-up calls when at home, either halfway through or in the days leading up to their departure, and to engage in job-related training in their free time (whether on rotation but off shift, or off rotation).

A further factor that emerged in the interviews, but was not covered in the evidence review, was how mental health shifted depending whether workers were on rotation or off rotation; and in particular during transitions between being off and on rotation. Interviewees described a fluctuating psychological experience; where highs were experienced towards the end of the on-rotation phase and at the beginning to middle of the off-rotation phase; lows in the first week(s) of returning from being off rotation; and the last week(s) of being off rotation.

Interviewees also described a general feeling of unrest and unease caused by a decline in the oil and gas sector, stating that this not only had an impact on resources (for instance, facilities were not being replaced or updated), but also on psychological health. One interviewee described;

“ We see through this platform the decline of the industry. We see it and we think about it all the time. It is the talk of the town and stress is rising and rising. I am getting older and I think about my job prospects all the time. At work it is all anyone talks about. ”

There was a consensus amongst interviewees that organisations were generally ill-equipped to support mental wellbeing and mental health and that there was a lack both of facilities and resources. Another aspect of wellbeing and the employee experience related to how interviewees felt that they were treated by their organisations. Many voiced concerns about poor management and weak leadership, highlighting that they did not feel appreciated and cared for. This feeling is starkly highlighted by the following interviewee;

*“ I always say in this system I'm **** - that's my number; You are just part of the business plan, just that! You are not a person, not a human. Just a business plan, that's it. ”*

Related to this, some interviewees talked about how, as a result of COVID-19, they were better supported than ever before, despite rather cynically suggesting that this change was a result of client, economic and global pressures, rather than employer appreciation or concern.

3.1.3. What factors facilitate the psychological health of remote rotational workers?

Individual factors

FIFO workers who had a positive attachment to work and the organisation and were more motivated to comply with safety regulations, experienced higher levels of wellbeing and sleep quality, and lower levels of psychological distress and burnout. Interestingly, and demonstrating evidence of a positive ripple effect, FIFO workers' positive emotional attachment to their work was found to be linked to less anxiety, depression and burnout in their partner. Gender appeared to facilitate psychological health in different ways. Female remote rotational workers were found to experience more job involvement and job satisfaction, and to have better social connections with others (across all social groups; immediate colleagues, general colleagues, home community and friends and family). Women were also more likely to access an Employee Assistance Programme, on-site mental health facilities and counselling services when experiencing mental distress, than were men. Men, however, were found to experience more autonomy in their roles than women.

Age was found to be both a barrier to and facilitator of psychological health, with particular barriers and facilitators associated with different age groups. Specifically, older workers (aged between 60 and 70) reported the lowest levels of psychological distress but were least likely to seek support, while younger workers were most likely to access on-site counselling if needed.

Parental status was also reported to have an impact on mental health, although specific outcomes differed between studies. One piece of research indicated that FIFO workers who had children experienced less psychological distress than those who had no children. However, another study found that those without children tended to engage in more effective coping behaviours.

Certain individual psychological qualities also appeared to facilitate psychological health in different ways; in particular psychological capital (encompassing self-efficacy, optimism, resilience and hope), resilience and self-esteem. The literature also identified a number of useful coping strategies that had a protective effect on mental health in these workers. These included self-determined work behaviours (which are centred on increasing job control, relatedness and competence), support-seeking behaviours, and being able to mentally detach from work (for instance, avoiding work-related conversations or activities following a shift).

Interviews. In common with the literature findings, the data obtained from the stakeholder interviews suggested that psychological resilience and adaptive coping were crucial for positive mental health. Interviewees said that staying busy with work whilst being on rotation helped them keep their minds off their families and how much they missed them. Another helpful technique which was mentioned and said to be common among remote rotational workers was the use of mental milestones to divide the on-rotation phase (e.g. the first weekend, the second weekend). Others said that they planned their leisure time in advance so they had something to look forward to upon returning home. Certain psychological constructs which had been measured in the literature under review, including self-esteem and psychological capital (e.g. self-efficacy, hope, optimism) did not emerge as themes in the interviews.

Social factors

Social factors were found to be important across the different occupational groups. Having an infrastructure which allowed for meetings, socialising and exercising; and having a range of social activities, were seen as key facilitators to creating community and promoting health and wellbeing. Workers who felt that they had sufficient autonomy during their time both off and on site had higher levels of wellbeing – and perception of sufficient autonomy was also linked to lower depression and anxiety in their partner.

Remote rotational workers who had a greater number of friends, exercised regularly, ate more healthily, obtained good sleep, used off time to recuperate and re-engage with friends and family (rather than partying) and stayed socially engaged on-site and at home, also tended to experience less stress and had better mental health than the ones who did not. That said, with regards to friendship, the very nature of remote rotational work resulted in long periods of absence, and this was reported to severely impair the ability to make and maintain meaningful social connections.

One piece of research tracked how leisure time was spent during the off-rotation period of the rotational contract. Contrary to what the researchers had expected, the transition from offshore work to family life was not characterised by rest, but by the pursuit of activities. Directly after having returned home, participants typically engaged in childcare and home-related activities; a trend that tended to decrease over the 14-day period when they were at home. Participants remained equally active in social, leisure, physical, volunteer and work-related activities throughout the 14-day study period. Research with a mining sample also found that the mere thought of leisure time off shift (in this research, around having sex) had a positive psychological impact.

Interviews. One aspect which was much more heavily emphasised in the interviews than in the evidence review was the role of family support whilst being on rotation. Maintaining daily contact with family members and making plans for what to do with the family upon returning home whilst off rotation was a crucial source of support and enabled interview participants to have something to look forward to. Employees described the process of planning every day of their off-rotation time as a key coping mechanism.

Interviewees also described the importance of the line manager to a much greater degree than was found in the evidence reviews, both in terms of direct support and in being the gateway between the organisation (for instance through communication) and the employee.

The level of luxury and types of entertainment available when being on rotation came out more strongly in the interviews than the literature review. Being stationed at more modern platforms with movie theatres and game rooms was seen to provide a wider range of leisure-time recovery activities. Having the ability to leave the site was also seen as an important resource. This was however only possible in some remote contexts, such as working in a mining community with sufficient levels of safety outside of the site.

Job and organisational factors

A wide range of job and organisational factors were reported to positively impact on psychological health. Satisfaction with the on-shift/off-shift patterns, flexibility within the shift patterns, and compatibility with workers' lifestyles were all associated with intention to stay in the organisation and lower levels of burnout. Although the literature on shift patterns is vast for this type of worker, little has been focused upon optimal shift patterns

for psychological health. Such lack of evidence creates a real challenge when it comes to making recommendations on the best rotational pattern for psychological health. Nevertheless, the literature has provided some direction. For instance, there was evidence to suggest that a 14-day swing shift (seven night shifts followed by seven day shifts) enabled better circadian rhythm adjustment following the second week than a 14-night fixed shift. This could in turn provide better leisure time recovery during the off-shift period. Other research pointed to even time (where a worker spends the same amount of time on-shift/rotation as off shift/rotation), shorter and less compressed rosters as all being better for mental health, wellbeing and family functioning (e.g. three-week on/ three-week off; two-week on on/two-week off and eight-day on/six-day off; five-day on/two-day off). Furthermore, day shifts were also associated with better mental health and wellbeing than night shifts.

Having job autonomy and control over decisions were found to be particularly important for psychological health and engagement in remote rotational workers. Gaining feedback and task variety were found to positively predict wellbeing; in addition to enjoying the job. Perhaps not surprisingly given the importance of autonomy, managerial, professional and leadership roles enjoyed better psychological health.

Organisational factors relating to processes, culture and climate were also found to be important for employee wellbeing. Remote workers who felt that they were working in a supportive culture and climate, where the organisation was committed to employee physical and mental health and where pay and organisational security were rated positively, reported lower levels of work pressure and stress, better sleep, rest and better psychological health. Furthermore, feeling part of the company and working for a



company which had a good induction process and training, were both negatively related to turnover intentions. A proportion of the literature was dedicated to safety perceptions and climate. Aspects of safety management, involvement and prioritisation, all positively impacted on quality of sleep in a sample of offshore oil and gas personnel.

At a more local level, feeling part of the team and having a good supervisor were both found to be key. Feeling supported by line managers or by peers predicted job satisfaction and wellbeing, as well as reducing psychological distress, burnout and stress levels. Interestingly, co-worker support had a noticeably stronger impact on all the outcome variables than did the line manager. This becomes of particular importance when assessing support in relation to suicidal tendencies. Only co-worker support, but not line-manager support, had a buffering effect on suicidal ideation; suggesting that in this working environment, peer support may be of the utmost importance.

Interviews. Peer support came through most explicitly within this category in the interviews. In particular, the notion of the “back-to-back” was emphasised. The back-to-back is the person who the remote rotational worker swaps places with upon commencing the on-rotation phase. A positive relationship with the back-to-back was seen as a crucial resource, both from an instrumental and emotional point of view. A good relationship included good communication, clear handovers and an aligned way of working between the parties. Being able to lean on each other in times of difficulty was also said to be important for mental health.

“*We have a really good relationship, we talk to each other every time we need to, whenever we have any problems arising. We talk to each other a lot – that’s very helpful.*”

In instances where disagreement might arise, constructive conflict resolution was deemed a necessary tool, as teams often worked in close proximity to each other. One interviewee however talked of a negative relationship with their back-to-back, describing how they were never together and didn’t see the role and the desired outcomes in the same way, meaning that they went in different directions. The following quote illustrates the issue with this;

“*It feels like I can never make progress because in my off-rotation, it is like all my work has been undone.*”

Positive aspects relating to the physical environment were also found to have a positive impact upon employee wellbeing. Good accommodation, including comfortable beds, larger sleeping spaces and sound-proofed cabins contributed to better sleep. Leisure time facilities such as tennis courts, gyms and swimming pools were also seen as facilitators for better physical and mental health. What was made clear in the interviews was that these resources were not equally accessible, but rather reserved for certain nationalities, job roles and ranks within the organisation.

TABLE 1. FACILITATORS AND BARRIERS TO PSYCHOLOGICAL WELLBEING OF REMOTE ROTATIONAL WORKERS

TYPES OF FACTORS	FACTORS THAT HINDER PSYCHOLOGICAL HEALTH (AND/OR TURNOVER INTENTIONS)	FACTORS THAT SUPPORT AND FACILITATE PSYCHOLOGICAL HEALTH (AND/OR TURNOVER INTENTIONS)
INDIVIDUAL	<ul style="list-style-type: none"> x Inability to psychologically detach x Existing mental ill health (such as anxiety and depression) x Psychological anticipation of travel and work worse than reality x Being distracted x Continuance FIFO commitment (“golden handcuffs”) x Shift work disorder/fatigue x Maladaptive coping x Negative health promoting behaviours (such as poor sleep quality and poor diet/eating habits) 	<ul style="list-style-type: none"> ✓ Psychological detachment from work ✓ Psychological resources (e.g. psychological capital, dispositional resilience, self-esteem) ✓ Being empathetic ✓ Individual motivation to maintain safety standards ✓ Positive emotional attachment to FIFO work ✓ Adaptive coping ✓ Positive health promoting behaviours (good sleep, healthy diet, consistent and strict self-care)
SOCIAL	<ul style="list-style-type: none"> x Inconsistent contractual regulations (such as not being able to leave site, visit bars on site for some workers) x Limited spare time; working during off-shift/off-rotation x Drinking culture (whether too much or not at all) x Use of sex to cope, affirm status and masculinity and strengthen identity and social networks x Loneliness at home and at work x Family matters or concerns about impact on family x Work life conflict and separation x Intention to leave as a result of family circumstances/change in x Financial pressures 	<ul style="list-style-type: none"> ✓ Level of luxury and availability of social and recreational activities (e.g. club membership, snooker bars, table tennis, tennis courts, gyms, swimming pools, physical spaces for socialising, movie theatres, game rooms etc.) ✓ Leisure time recovery activities (e.g. playing the guitar, reading, rest, listen to music, take “own time”, physical exercise) ✓ Being allowed to leave the site ✓ Social activities and support from colleagues ✓ Workers of the same culture/nationality sticking together/ sense of community ✓ Family support, including maintaining contact with family and friends when being on assignments ✓ Happiness with, and volume of personal relationships ✓ Autonomy that is experienced while at home

KEY

- Factors from both the literature review and interview
- Factors from from the literature review only
- Factors from from interview only

JOB/ ORGANISATIONAL

- x Unfavourable shift design (e.g. night shifts, longer rotation contracts and roster ratio/compression, irregular work hours and rosters, inflexible work arrangements)
- x Overtime and **lack of respite (free time, on call, no breaks, working during off-rotation, job-related training/learning expected to occur in free time, travelling during off-time)**
- x Issues with vacation (not being able to take or not enough)
- x Occupational/work stress
- x **Demands of role and perceived underutilisation of skills/repetitive work (a.k.a. "groundhog day")**
- x **Low manpower/issues with recruitment**
- x **Information overload**
- x Lack of freedom
- x **Poor relations between employees and organisation (e.g. poor updates and communication, employees not being valued or listened to, treated like a "number")**
- x Lack of priority of mental health (stigma, poor use of EAP)
- x Perceived lack of safety and priority of safety at work/risk perception at work (including threat of kidnap)
- x **Inequity across job roles (differences by level, and offshore, social segregation between skilled and non-skilled workers and different nationalities/ethnicities vs. onshore, agency vs. old staff)**
- x Macho culture
- x Issues and lack of support from managers and colleagues (including back-to-back)
- x Lack of access to internet and landline
- x Poor ergonomics (e.g. working in awkward positions, move and lift heavy objects, heavy equipment, boots, helmets)
- x Unpleasant physical environment (including poor accommodation, confined spaces, being at out at sea, sharing rooms with snorers, noise, moving ship etc.) and unfavourable external conditions (e.g. weather; either storms or too hot)
- x Transition to/start of the "on site" phase, **distance to remote work location**
- x Job insecurity (including the decline of the oil and gas industry, changing nature of industry)
- √ Favourable shift design (e.g. day shifts **and swing shifts**, satisfaction with rotation and roster, **precise working patterns**, FIFO work arrangement flexibility)
- √ **Autonomy/control**
- √ Job related feedback
- √ **Enjoyment of the role and job**
- √ Suitable pay and higher income (including paid leave)
- √ **Long term career focus**
- √ **More job resources (e.g. more manpower, more experienced team members)**
- √ **Ability to get respite (breaks and off-rotation and holidays)**
- √ Company providing good training (including induction)
- √ Company being committed to diversity and acceptance
- √ Priority of mental health and wellbeing/psychologically embedded and cohesive culture
- √ Organisation providing help with logistics (e.g. paid transportation, hotel etc.)
- √ Prioritisation of safety (competence, climate and comprehension)
- √ **Strong leadership**
- √ **Trust (in processes and colleagues)**
- √ Supportive culture and climate (including peer and manager support, **genuine care, empathy, understanding and support from organisational representative and good working relationship between back-to-backs, constructive conflict resolution)**
- √ Feeling part of the company and team (i.e. responsive and communicating well)
- √ Good internet connection and good technology (e.g. Zoom, Skype etc.)
- √ **Physical working conditions such as environment, and accommodations (e.g. comfy beds, larger spaces, sound proofed cabins)**
- √ Transition to home and time off phase

3.1.4. The perceived impact of the COVID-19 pandemic

As the study was carried out during the COVID-19 pandemic, we were interested in finding out how the situation had impacted upon remote rotational workers with regards to changes in job role, feelings about their job, and whether they could foresee any long-lasting changes as a result of the global epidemic.

A strong pattern emerged from the interview data which suggested that although the job role itself had not officially changed, the workload had substantially increased whilst manpower had decreased. Increased workload was particularly attributed to COVID-19 specific measures which had been put in place in addition to the usual job requirements. These included extended rotation and confinement, arranging transportation, contract tracking, risk assessments, screening procedures and setting up processes and procedures for social distancing. Interviewees also mentioned a range of added stressors, such as massive disruptions and increased number of COVID-19 cases where the remote rotational worker was employed.

The pandemic was also reported to have had a negative financial impact on some remote rotational workers. This had occurred as a result of organisations making redundancies due to the global economic crisis; or because workers still in employment had been assigned to working from home, thus missing a rotation and in effect losing their reward package. The pandemic had also brought on certain negative feelings in both the remote workers and their families. Workers who had been on rotation for months and unable to leave their location; or workers who had been forced to enter quarantine upon commencing their off-rotation phase expressed a strong sense of loneliness, in some cases hopelessness, and said they

deeply missed their families. One interviewee at the time of interviewing had been on rotation for over five months and did not know when they would be able to see their family. Some family members had also expressed worry and concern about the risk of getting infected, although some of this was buffered by the realisation among interviewees of the organisation taking health and safety seriously. Workers who had returned onto rotation during the pandemic also described the deleterious impact of the pandemic on their social support; in that facilities enabling interaction (such as sports centres and bars) were closed. The following quotation starkly illustrates the change; *“Before COVID-19 on camp we have lots of recreation facilities where we can do sports, watch TV, play billiards. I sometimes go there with colleagues. Twice a week I would play table tennis. There is also a gym which I would go to 2-3 times a week. Since COVID-19, all these have been shut. I stay in my room.”*

Interestingly however, some interviewees saw COVID-19 as creating positive change, meaning they were better communicated with and taken care of; and for those interviewees who worked in a medical setting, were also better resourced. Although it was noted that many employees had faced other diseases such as Ebola, the high profile of COVID-19 had meant that external pressure (for instance from clients) had forced better provisions for workers.

Many interviewees foresaw changes to certain aspects of remote rotational work. Much of this was geared towards working more virtually, making greater use of communication technology such as Zoom, Skype for business, tele-medical facilities etc. Some had indeed already experienced a greater number of virtual meetings than before. This had in many instances been seen as a welcome change, as it was said to save transportation time and to enable greater work-life balance.

3.2. Stage Three: Survey results

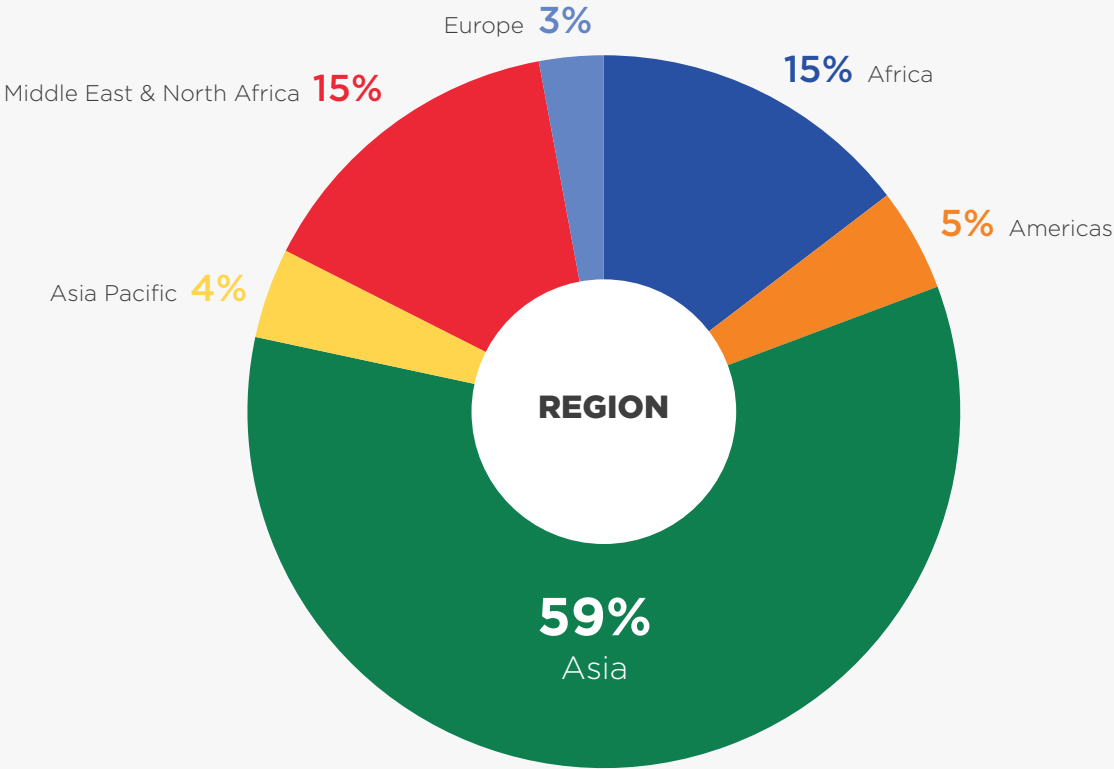
The results from stages one and two were combined to create a model, setting out both the psychological outcomes of remote rotational work, and factors affecting those outcomes, which was used to create a survey questionnaire.

3.2.1. Demographic data from the survey

The survey was completed by a wide range of remote rotational workers across types of rotation, sectors, areas and from a range of professional and cultural backgrounds.

The respondents were split between mining, offshore and seafaring/maritime industries and were globally represented.

FIGURE 3. REGION WHERE WORK IS BASED



The majority of the sample worked in Asia (59%) with 15% from each of Middle East and North Africa; and Africa. A small number of the sample (3%, 4% and 5% respectively) came from Europe, Asia Pacific and the Americas. Remote rotational workers tended to work, in the main, with colleagues who shared their nationality (the average was 64% of colleagues who shared their nationality). Those in Africa

(46%), Europe (48%), Middle East and North Africa (51%) were least likely to work with those who shared their nationality; and those in the Americas (88%) and Asia (72%) were most likely. It was also clear from the sample that managers were far less likely to work with others of their nationality than employees (54% and 70%).

TABLE 2. DEMOGRAPHIC DATA FROM SURVEY RELATING TO ROLE

DEMOGRAPHIC	RANGE	MEAN (AVERAGE)
Weeks on rotation	1 to 13 weeks	6 weeks
Weeks off rotation	1 to 13 weeks	4 weeks
Hours worked per shift	8 to 18 hours	12 hours
What proportion of your on-rotation pattern is day shifts?	0 to 100%	77%
How many years have you worked as a remote worker?	Less than a year to 30 years	8 years

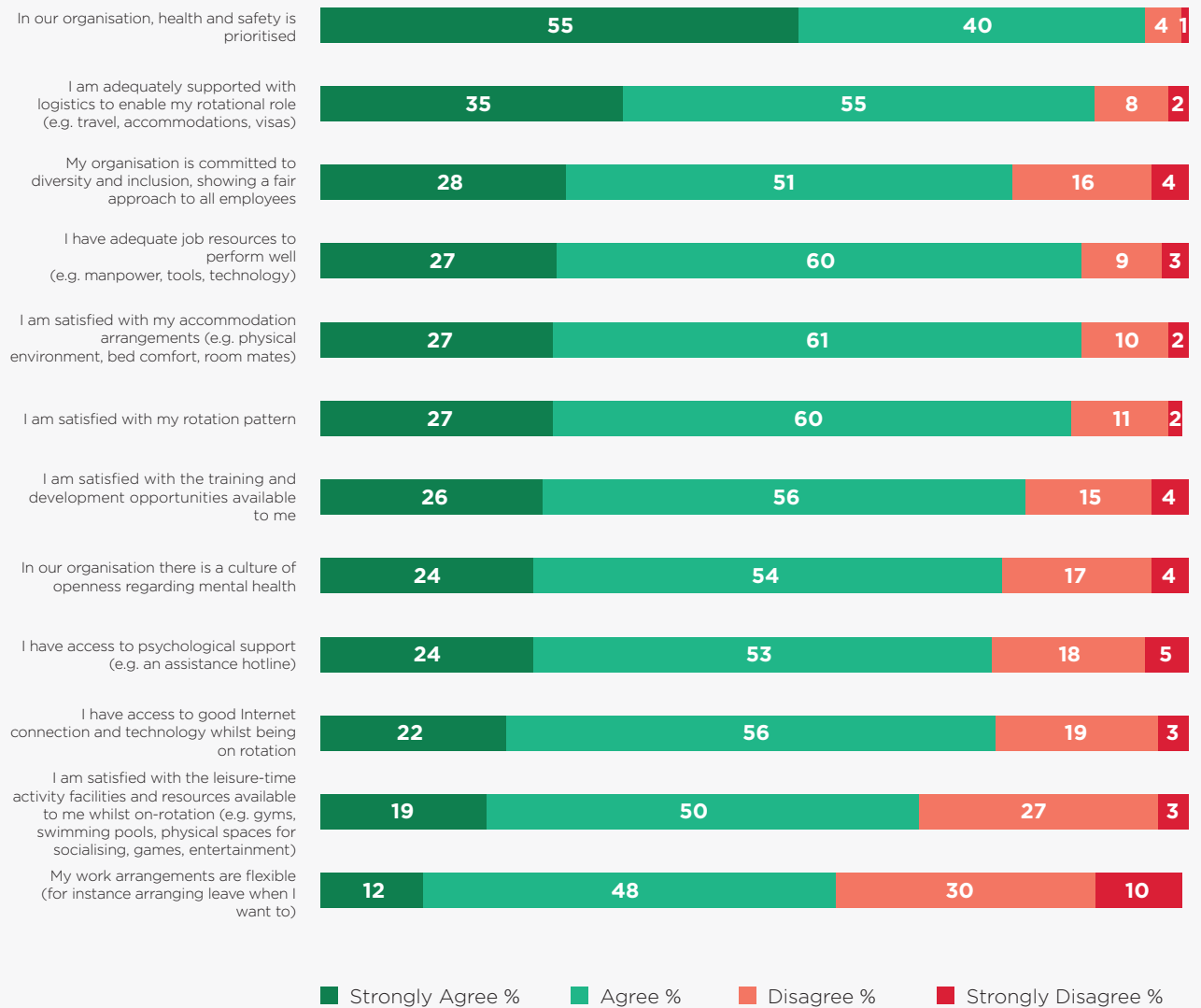
As can be seen from Table 2, the rotational patterns and time in the role of the remote workers were varied. On average, respondents had worked eight years in the role, working mainly day shifts. Although rotation patterns varied, the average pattern was six weeks on rotation and four weeks off. The data demonstrates that on average, the time off rotation was shorter than that on rotation. For these results, a rotation ratio was calculated whereby a rotation ratio of one meant that time off and on rotation was equal; and below one where workers were longer on rotation than off rotation. In this study, a mean rotation ratio was 0.84, meaning on average workers worked on rotation significantly longer than off rotation. There were no examples of workers being longer off- than on-rotation. It is interesting to note that hours on shift were long for the sample, with some respondents working 18 hours on one shift, and the average being 12hour shifts.

There was a balanced split by seniority: 46% of the respondents were employees, and 33% managers (21% did not categorise at these levels).

The sample, as expected, was a majority male one (81%) which is broadly representative of populations within remote rotational work. There were a range of ages in the sample, from 25 to 63 years with an average age of 41 years. 70% of respondents were married (or in a civil partnership) and 16% single. 65% had children. The vast majority (95%) had no history, or current diagnosis, of any psychological issues.

3.2.2. Organisational support and provisions for remote rotational workers

TABLE 3. SUMMARY OF ORGANISATIONAL PROVISIONS OFFERED TO REMOTE ROTATIONAL WORKERS



The vast majority of remote rotational workers were satisfied with the culture of their organisation, with 95% feeling that their health and safety was prioritised, 79% that their organisation was committed to diversity and inclusion and 78% that there was a culture of openness.

Respondents were also satisfied with the provisions such as job resources (87%), accommodation (88%), internet connection (78%) and leisure time facilities (69%). Although the majority felt that they did have psychological support, (23%) did not. The lowest scoring question in this section related to work flexibility, with 40% feeling that they did not have adequate flexibility in their role.

When looking at differences across the sample, it was clear that respondents from Asia (and also the Middle East and North Africa) were significantly more satisfied with the organisational provisions they enjoyed than respondents from the Americas and Asia Pacific. It was also found that this data was affected by seniority – those in a managerial position enjoyed greater provisions such as internet connection and felt that they were more equally valued than employees not at managerial status.

3.2.3. Psychological implications of remote rotational work: Emotional outcomes

Negative outcomes

TABLE 4. MOOD SUFFERING WHILE BEING AWAY

Whilst away on rotation, my mood/mental health suffers

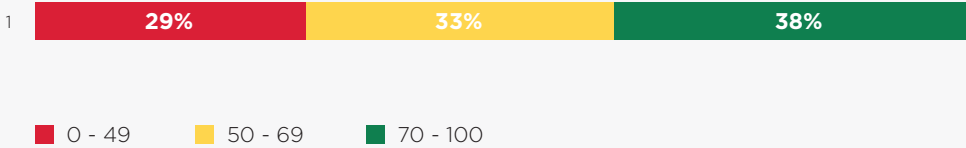


■ Strongly Agree % ■ Agree % ■ Disagree % ■ Strongly Disagree %

The majority of respondents (52%) felt that their mood declined, and their mental health suffered whilst on rotation. This was found to be consistent across the sample regardless of gender, job role, what region they worked in and whether they had children. To measure mental wellbeing, we used the WHO-5 Well-Being Index, a scale that has been validated across the world. The WHO-5 provides a score for individuals from between 0 (worst imaginable wellbeing) to 100 (best imaginable wellbeing). In the general population, we would expect an average score to be 70, with a score of 50 or less being a marker for clinical depression.

TABLE 5. MENTAL HEALTH (MEASURED BY THE WHO-5) WHILST ON ROTATION

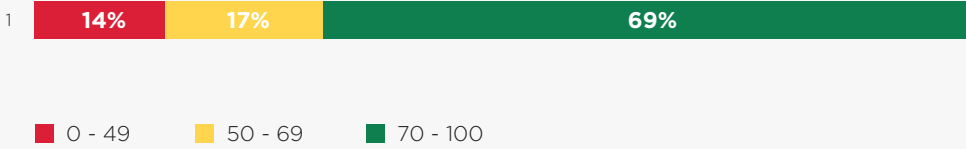
Psychological wellbeing on rotation



From the data, 62% of respondents had lower levels of wellbeing than the expected average of 70 within the general population, with nearly one third (29%) meeting the benchmark for clinical depression.

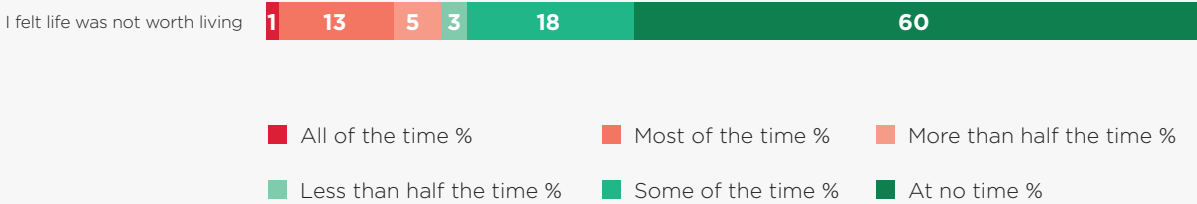
TABLE 6. MENTAL HEALTH (MEASURED BY THE WHO-5) WHILST OFF ROTATION

Psychological wellbeing off rotation



Off rotation, however, the picture is significantly different, with less than a third (31%) having lower levels of wellbeing than we would expect from the general population, and 14% meeting the benchmark for clinical depression. No significant differences in wellbeing on or off rotation were found by gender, job role, region, children or relationship status.

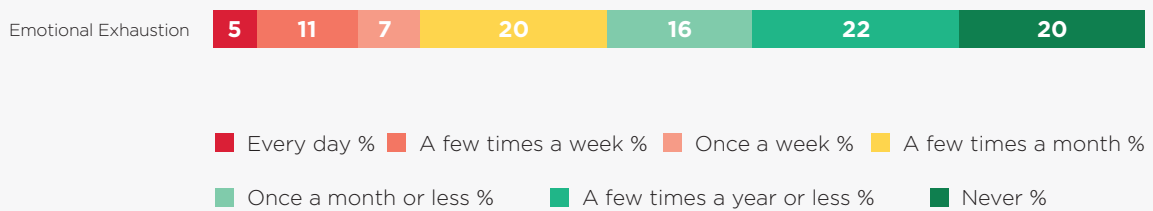
TABLE 7. SUICIDAL IDEATION WHILST ON ROTATION



In an adult population, research suggests that the prevalence of suicidal thoughts is likely to be between 4 and 9%. Within this sample, 40% had suicidal thoughts some of the time, with nearly half (19%) experiencing these thoughts more often than not. As found with the wellbeing measure, the propensity for having suicidal ideation significantly reduced during off-rotation. Although still a high number, when off rotation, 31% had suicidal thoughts some of the time, with 13% suffering more often than not.

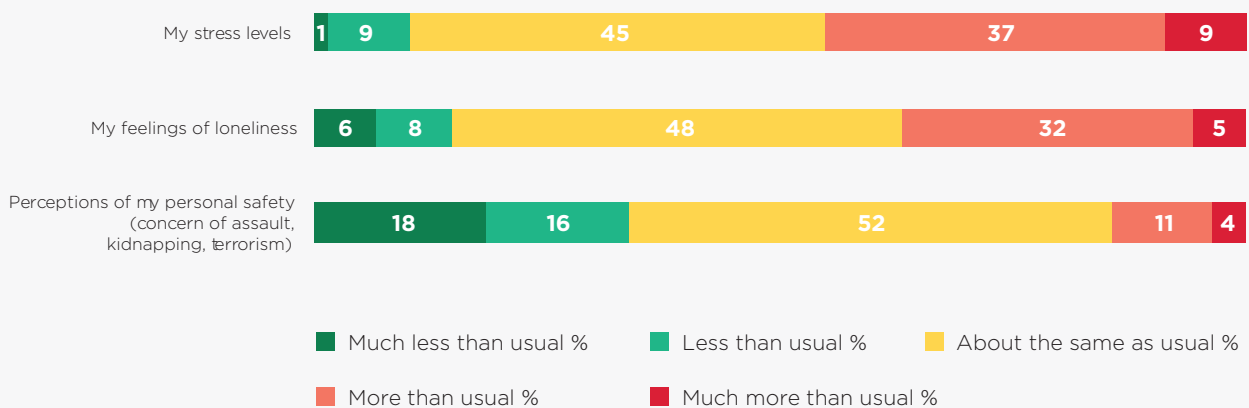
When looking at differences by group, significant differences were found by gender, seniority and region. Male employees (rather than managers) who worked in Asia were more likely to have suicidal thoughts than females, or than those working in any other global region. 40% of male respondents compared to 30% of female respondents had suicidal thoughts, and 45% of employees (compared to 27% of managers) and 52% of employees working in Asia (compared to none in Europe and only 18% in the Middle East and Africa) had suicidal thoughts.

TABLE 8. EMOTIONAL EXHAUSTION



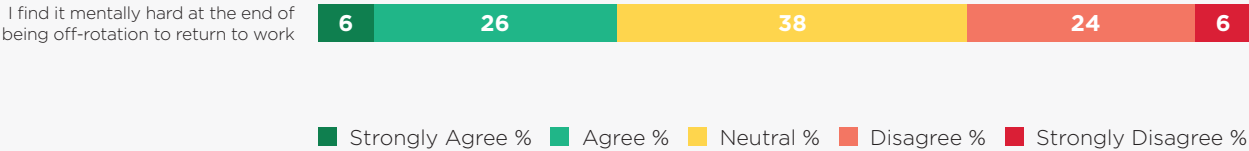
From the remote rotational workers who responded, nearly a quarter (23%) experienced emotional exhaustion, a core feature of burnout, on a weekly basis. In a population, we would expect to see symptoms of burnout in between 2% and 13% of the population. No differences in levels of burnout were found by gender, job role, region or parental status.

TABLE 9. PSYCHOLOGICAL STRAIN ON-ROTATION



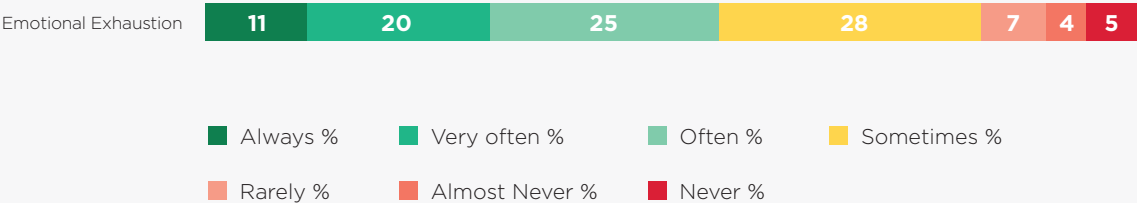
Nearly half the respondents (46%) reported that their stress levels increased when they were on rotation, with over a third (37%) reporting that their feelings of loneliness also increased. Interestingly, there was a group that felt that they were far less lonely or less lonely (14%) and under less stress (10%) whilst on rotation compared to off rotation. Respondents were largely comfortable with their perceptions of personal safety, with over a third (34%) feeling more safe whilst on rotation, and just over half (52%) feeling that they were as safe as usual whilst working. There were some regional differences: those in Asia and Africa saw stress levels increase most and perceptions of personal safety drop; whereas those in the Americas saw greatest increases in their levels of loneliness on rotation.

TABLE 10. MENTALLY HARD AT THE END OF BEING OFF ROTATION TO RETURN TO WORK



Nearly a third (32%) of respondents found it mentally hard to return to work at the end of being off rotation. This was more particularly felt by employees rather than managers.

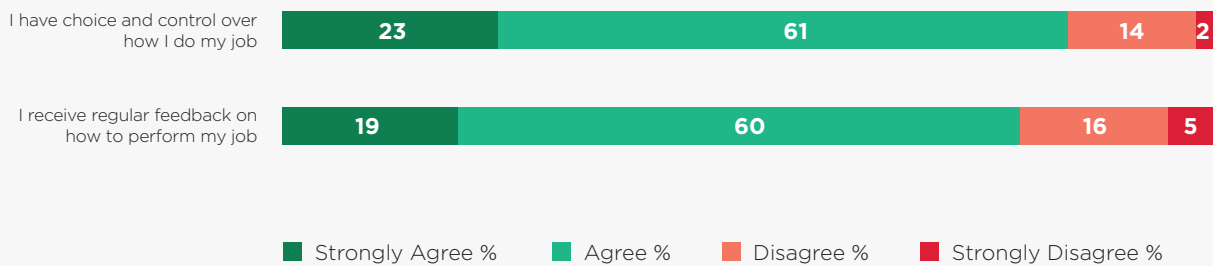
TABLE 11. EMPLOYEE ENGAGEMENT



Just over half of remote rotational workers (56%) reported feeling engaged with their work, but this figure dropped to 43% when looking at employees rather than managers. One in six were actively disengaged with their role. In addition to managers being more engaged, increased engagement was also found in females (78% compared to 51% of males) and those working in the Middle East and North Africa (77%). Respondents in Asia had the lowest levels of employee engagement (46%). Although sharing your nationality with colleagues was positive in terms of mental health disclosure, results suggested that it was also related to lower engagement and higher work life conflict.

Positive outcomes

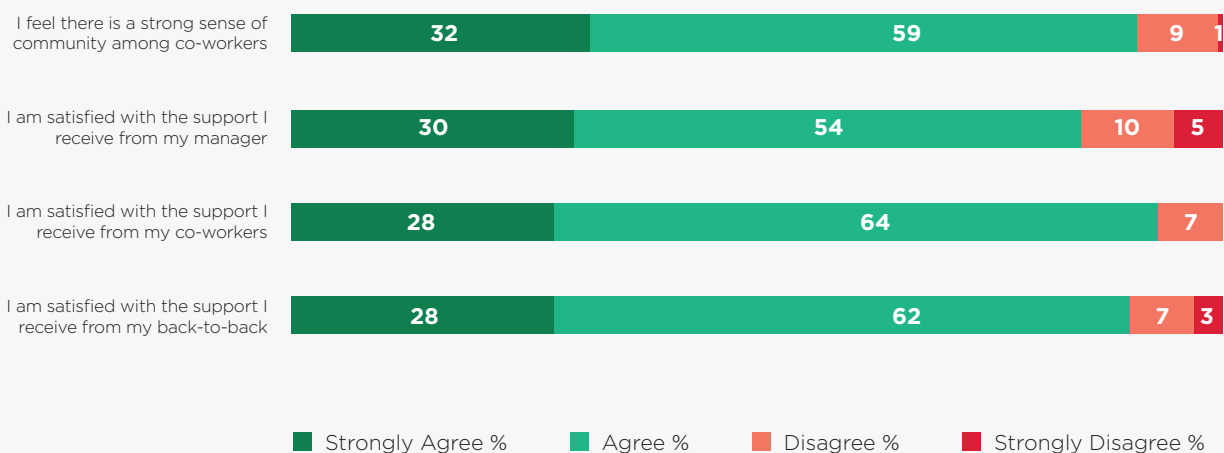
TABLE 12. JOB CONTROL



Remote rotational workers reported being very satisfied with the level of choice and control (84%) and feedback they received on their job (79%). Perhaps unsurprisingly, managers enjoyed significantly more control than employees.

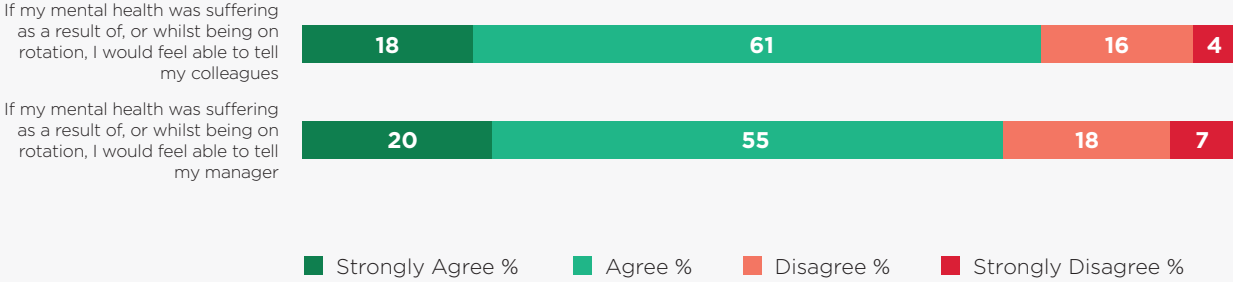
3.2.4. Psychological implications of remote rotational work: Job/organisational

TABLE 13. JOB SUPPORT



The vast majority of remote rotational workers were also very satisfied with the support they received from their co-workers (92%), their manager (84%) and their back-to-back (90%) and reported feeling a strong sense of community (91%).

TABLE 14. FEELING ABLE TO SHARE MENTAL HEALTH CONCERNS

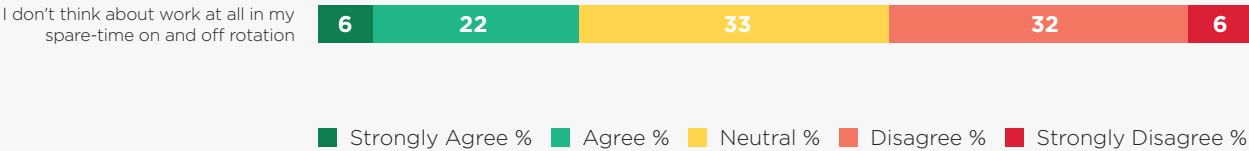


The vast majority of respondents felt that they would be able to tell their colleagues and their managers if their mental health were to suffer as a result of, or whilst being on rotation (79% and 75% respectively). Workers who were working with people of the same nationality reported that they would be more comfortable sharing any mental health struggles.

3.2.5. Psychological outcomes of remote rotational work: Family/social/work life

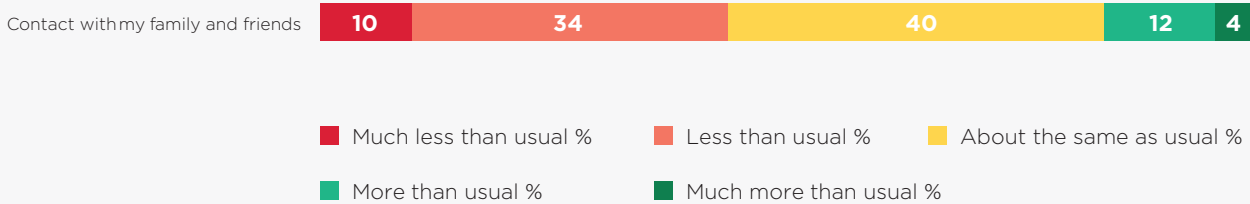
Negative outcomes

TABLE 15. NOT THINKING ABOUT WORK WHEN OFF



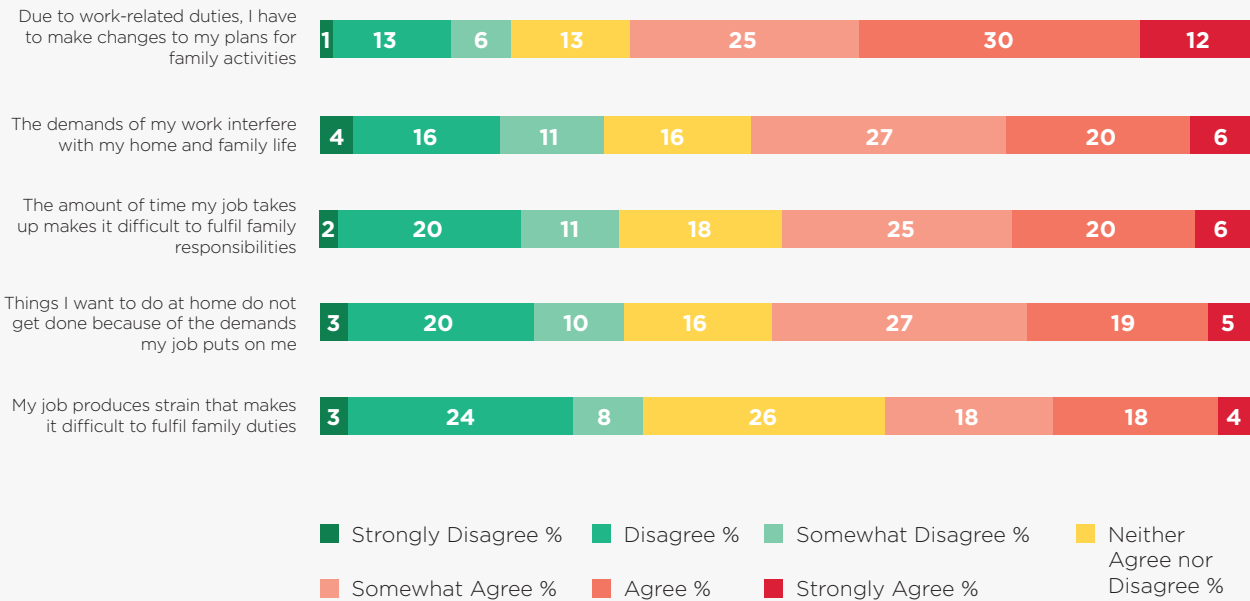
Despite being on rotation, 38% continued to think about work in their spare time off and on-rotation. This was regardless of their gender, seniority, parental status or region of work.

TABLE 16. CONTACT WITH FAMILY AND FRIENDS



44% of remote rotational workers reported that as a result of their work, they had less contact with their family and friends.

TABLE 17. WORK-FAMILY CONFLICT

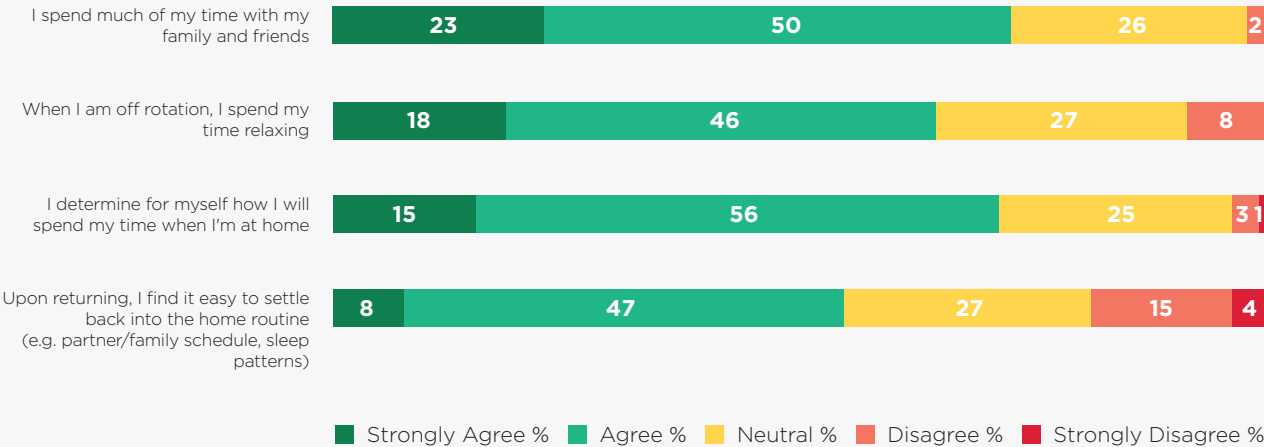


Just over half of rotational workers (51%) experienced work-family conflict, particularly in terms of having to change plans (67%) and managing the demands of work as compared to family (53%). This was experienced equally by all types of remote rotational workers, although did differ by rotation ratio. Interestingly, those with a higher rotation ratio (i.e. more equal time between on-rotation and off-rotation) experienced more suicidal thoughts and lower engagement on rotation. This could potentially be as a result of a longer period off rotation, or a shorter on- and off- rotation schedule, meaning that adjustment to and from both phases is negatively affected. Despite this, 40% of respondents felt that they had a good work-life balance, with those with higher rotation ratios experiencing the best work-life balance.

Positive outcomes

Almost all workers (96%) were satisfied with the support that they received from their family and friends. This satisfaction with home life is dominantly reflected in their experiences of being off rotation.

TABLE 18. EXPERIENCE OF BEING OFF ROTATION



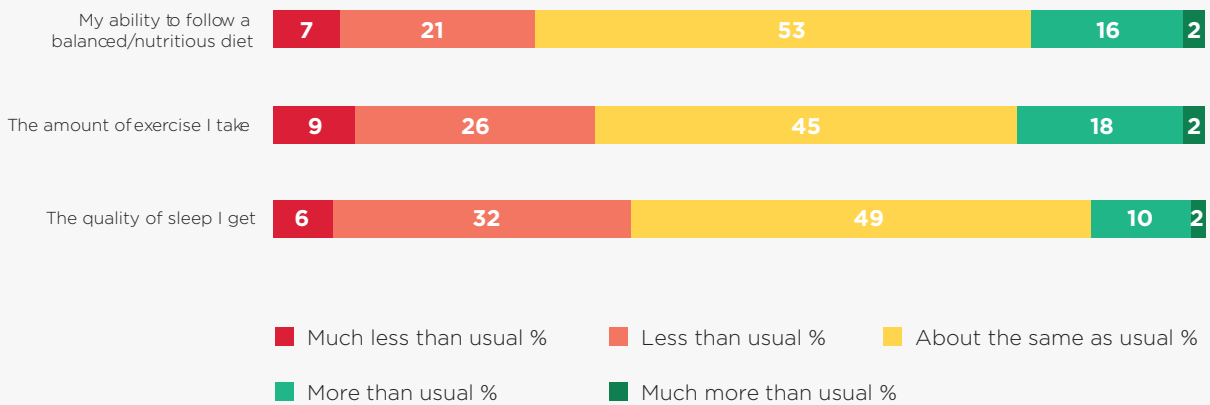
When off rotation, most workers spent their time with family and friends (73%) and relaxing (64%). Although nearly 1 in 5 experienced difficulties settling back to work after their time off rotation, the majority (55%) found this unproblematic.



3.2.6. Psychological outcomes of remote rotational work: Psychosocial/psychosomatic

Negative outcomes

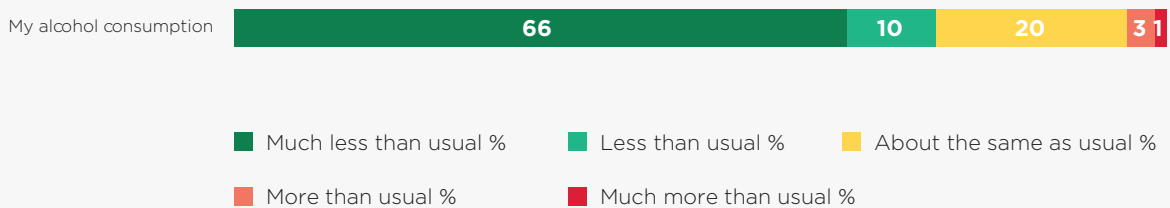
TABLE 19. PHYSICAL HEALTH ASPECTS



Although around half of the workers found that whilst being on rotation, they didn't tend to change their eating, sleeping and exercise habits, over a third took less exercise (35%) and experienced worse-quality sleep (38%) and over a quarter (28%) were less able to eat a nutritious diet whilst working.

Positive outcomes

TABLE 20. ALCOHOL CONSUMPTION

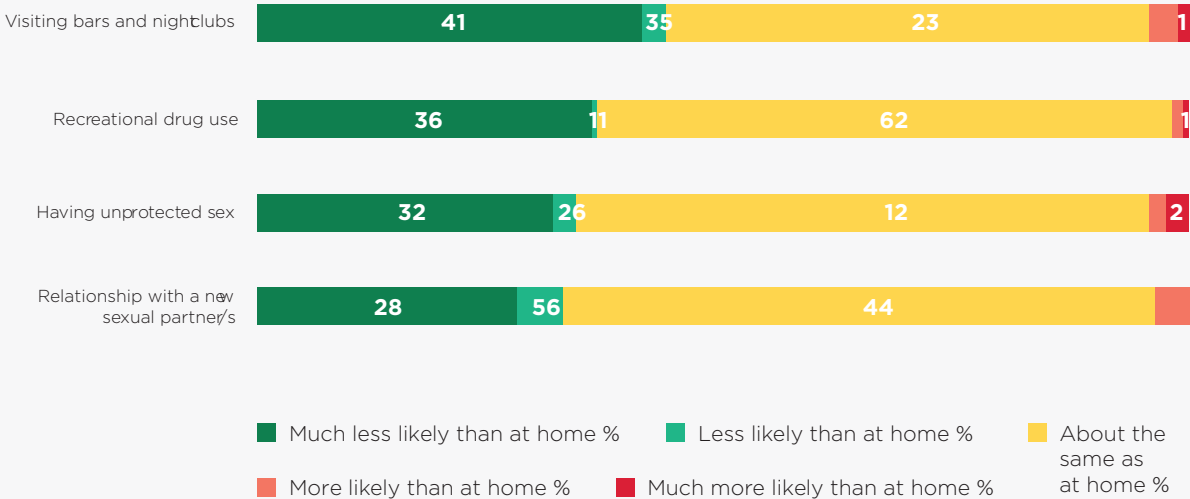


A positive finding was that more than three quarters of remote rotational workers (76%) consumed less alcohol when they were on rotation than they would at home.

A decline was also found in other risk behaviours. Although the majority did not indicate that their behaviours significantly changed whilst being on-rotation, for those that did, it was for the positive, i.e. being less likely to visit bars and nightclubs, take recreational drugs, have unprotected sex and have a relationship with a new partner.

TABLE 21. RISK BEHAVIOURS

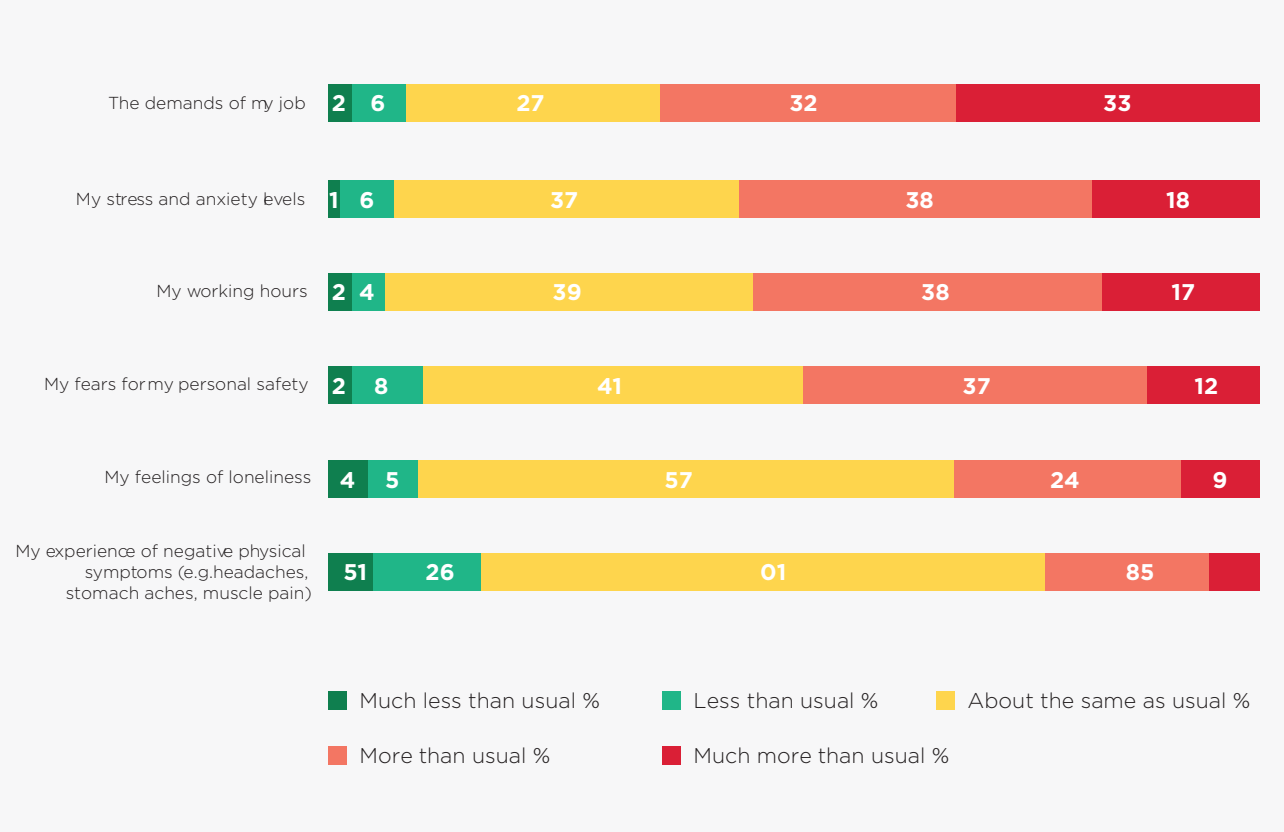
Risk Behaviours



3.2.7. Outcomes relating to the COVID-19 pandemic

Negative outcomes

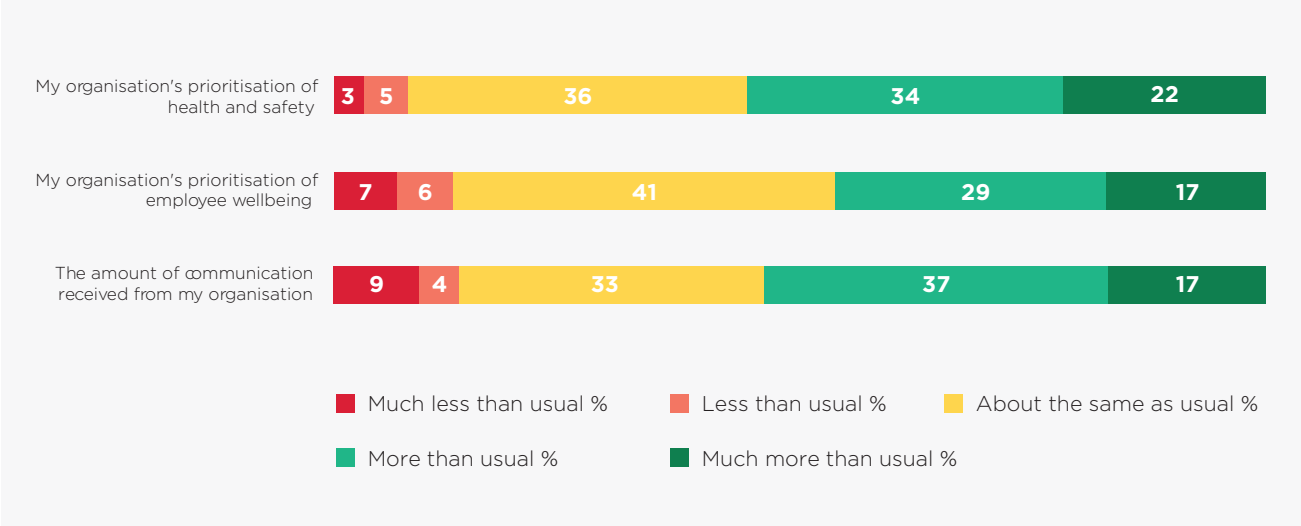
TABLE 22. NEGATIVE CHANGES AS A RESULT OF THE COVID-19 PANDEMIC



The majority of respondents found that the pandemic had increased the demands of their job (65%), their stress and anxiety levels (56%) and their working hours (55%). Nearly half were also more concerned for their personal safety (49%). A third (33%) of employees had also seen their feelings of loneliness increase, and nearly a quarter (23%) had experienced an increase of negative physical symptoms.

Positive outcomes

TABLE 23. POSITIVE CHANGES AS A RESULT OF THE COVID-19 PANDEMIC



Remote rotational workers also saw some aspects of life improving during the pandemic. Employees felt that they were being treated better by their organisation, with over half seeing greater prioritisation of health and safety (56%) and more organisational communication (54%) and nearly half (46%) seeing increased prioritisation of employee wellbeing. 41% enjoyed increased contact with family and friends (this is likely to be those that were not on rotation or were able to work from home) and over a quarter (29%) saw increases in their sleep quality.



3.3. Factors affecting the relationship between remote rotational work and outcomes

Inferential statistical analyses were carried out to establish which factors showed a negative relationship with the different outcomes (in other words which individual attributes or aspects of remote rotational work were making the experience worse for respondents) and which were making the experience better for remote rotational workers (protecting remote rotational workers from negative consequences).

3.3.1. Factors worsening the experience of remote rotational work

Emotional exhaustion, which is a core element of job-related burnout, was found to be the most important negative factor for remote rotational workers. Emotional exhaustion had the strongest association with work-family conflict and was also significantly associated with a decline in both mood and psychological wellbeing when being on rotation, as well as an increase in anger and resentment towards the job and organisation (a second core element of job-related burnout). This means that if remote rotational workers are exhausted, they are more likely to experience work-family conflict, lower mood and wellbeing as well as more cynicism towards their job and employer. This relationship is of importance, as almost one quarter of respondents experience emotional exhaustion on a weekly basis.

A worsening of mood and mental health suffering whilst away on rotation were positively associated with suicidal ideation on rotation, meaning that those employees that saw their mood and mental health suffering were more likely to also have suicidal thoughts. Having

suicidal thoughts on rotation was in turn associated with cynicism towards the job and organisation and strongly related to suicidal thoughts off rotation. These findings are crucial, as 40% of all respondents experienced suicidal thoughts on rotation some or all the time, with nearly half of those experiencing them *more often than not*. Experiencing suicidal thoughts off rotation was specifically and negatively associated with employee engagement. In other words, remote rotational workers who experienced suicidal thoughts when at home returned to the workplace with lower engagement levels for their on-rotation phase.

Respondents who reported that they found it mentally hard to return to work at the end of being off rotation were significantly much more likely to experience suicidal thoughts, emotional exhaustion and lower levels of engagement. This finding is worrying given that almost a third of respondents (32%) reported that they found it mentally difficult at the end of off-rotation to return to work.

Working hours were found to contribute to work-family conflict, with those working longer likely to experience significantly more work-life conflict. Working hours were long (an average of 12 hours per shift) and work-life conflict was high (51%) across the sample.

The respondents who felt pressure to support their family economically were significantly more likely to experience the cynicism component of job-related burnout. However, this perceived pressure also appeared to have some protective effect, as it positively predicted employee engagement. It may be that workers who felt responsible for funding for their families also experienced greater dedication to their jobs because of the importance attached to their earning capacity.

3.3.2. Factors improving the experience of remote rotational work

Work-life balance was found to be strongest protective factor for psychological wellbeing on rotation, for work-family conflict and for employee engagement, showing that those workers who were happy with their work-life balance, were overall happier, experienced lower levels of work-family conflict and depression; and were more dedicated to their jobs when returning to the on-rotation phase.

Through statistical analyses, we identified a range of factors which in turn predicted better work-life balance. These included a higher shift ratio (in other words, having more weeks off relative to weeks on), satisfaction with leisure-time activity facilities and resources available, receiving manager support and being able to psychologically detach from work in spare time on and off rotation. In other words, the more of these resources which can be cultivated, the more work-life balance workers will perceive that they have. This is important to bear in mind in light of the finding that only 40% of workers felt they had a good work-life balance.

Respondents who spent much of their time off with their family and friends experienced significantly higher levels of psychological wellbeing and lower incidences of suicidal thoughts when off rotation. In addition, workers who were satisfied with the support they received from their family and friends whilst on-rotation experienced higher levels of employee engagement and less work-family conflict.

Some factors related to shift design, the organisation and the job also had a protective effect on employee mental health. The number of weeks off rotation was negatively associated with suicidal thoughts off rotation. In other words, remote rotational workers

who enjoyed longer periods off were also less likely to experience suicidal thoughts when being at home. Remote rotational workers who believed that they had adequate job resources to perform their role well were less likely to experience work-family conflict. Respondents who perceived their organisation to be committed to diversity and inclusion and who felt supported by their manager experienced less cynicism towards their job and employer. Job-related choice and control appeared to play an important role in mental health, as respondents who reported higher levels of these, also experienced greater psychological wellbeing and less suicidal ideation on rotation. Feeling able to tell colleagues if one's mental health was suffering was associated with greater levels of employee engagement.

Psychological wellbeing appeared to have a spill-over effect, suggesting that people who experienced higher levels of wellbeing on rotation would also experience higher levels of wellbeing off rotation and vice versa. The relationship was, however, stronger in the direction on rotation to off rotation, rather than the other way around, suggesting that it is even more important to promote the factors which contribute to psychological wellbeing on rotation. There were slight nuanced differences in the relationships between psychological wellbeing on and off rotation and other outcome variables. Psychological wellbeing on rotation was negatively associated with emotional exhaustion, suggesting that those who experienced greater psychological wellbeing also were experiencing lower levels of emotional exhaustion. Respondents who experienced higher levels of psychological wellbeing off rotation, also experienced lower incidence of suicidal thought.

Finally, with regards to personal demographics, age was negatively related to emotional exhaustion, suggesting that younger workers were experiencing less emotional exhaustion than older workers.

4

KEY MESSAGES AND CONCLUSIONS



Remote rotational work continues to be a lucrative business for many employees, employers and communities alike, particularly in those areas that are rich in natural resources (Parker et al., 2018). However, despite the positive impact of this type of work on the economy, it can be deleterious to employee psychological health. Although recent times have seen an increased research focus on remote rotational worker wellbeing, it is suggested that many employees do not have adequate health and wellbeing monitoring or strategies and policies in place to protect employee wellbeing. Further, although there has been a growing body of research, there has tended to be a focus on one sector (such as offshore oil and gas) or one location (such as Western Australia), exploring often one psychological factor. This has meant that there have been a lack of overarching recommendations or guidelines for the protection of mental health in remote rotational workers.

This research is the first of its kind to both synthesise existing literature and gather perspectives from experts and remote rotational workers themselves. The aim is to enable stakeholders who have a duty of care to remote rotational workers to make evidence-based adjustments and recommendations to their employees around this type of work and to enable organisations to increase awareness in all their employees about the psychological implications of remote rotational work, thereby mitigating risks. Ultimately, it aims to increase the safety, health, security and wellbeing of remote rotational workers by understanding more about the psychological implications of this type of work, both on rotation and off rotation. A final aim, given the timing of this research, was to understand how the psychological experience of remote rotational work had changed as a result of the COVID-19 pandemic.

To answer these aims, a three-phase approach was taken: firstly a review of both academic and practitioner literature; secondly interviews with both remote rotational workers and stakeholders who employed or had a wealth of experience working with them; and finally a survey of remote rotational workers themselves.

The literature review and interviews conducted in stages one and two of the project identified four categories of outcomes:

- **Emotional outcomes:** negative outcomes such as burnout, loneliness, depression, suicidal thoughts; and positive outcomes such as job satisfaction, fun and excitement
- **Family/social/work-life outcomes:** negative outcomes such as children's emotional wellbeing, adjustment and behaviour, work-family conflict, negative impact on relationships, financial pressure on being the breadwinner; and positive outcomes such as social relations and family functioning.
- **Psychosocial/psychosomatic outcomes:** negative outcomes such as fatigue and insomnia, sleep difficulties, stomach problems; and positive outcomes such as sleep duration.
- **Job and organisational related outcomes:** negative outcomes such as intention to quit, lack of competence and motivation; and positive outcomes such as work enjoyment and involvement, feeling of community and comradeship.

The findings from stage one and two were used to create a model of the psychological outcomes of remote rotational work, and the factors affecting those outcomes. This was then used to create the stage three survey. The data gathered at Stage Three both corroborated and built on the findings from the literature review and interviews.

Table 24 shows a summary of the key findings from the Stage Three survey in terms of the psychological implications of remote rotational work. The columns denote where these outcomes were different for a particular group or demographic of remote rotational workers. For instance, suicidal thoughts were most commonly experienced by males, by employees (rather than managers) and for those based in Asia. No differences were found by parental responsibility, marital status or having children.

TABLE 24. SUMMARY OF OUTCOMES

SUMMARY OF OUTCOMES	GENDER	JOB LEVEL	REGION
EMOTIONAL			
52% felt their mood declined when on rotation			
Nearly a third (29%) met the benchmark for clinical depression whilst on rotation			
When on rotation, 62% had lower levels of wellbeing than we would expect in a general population, but this dropped to 31% when off rotation			
40% of all respondents experienced suicidal thoughts some or all the time, with nearly half of those experiencing them more often than not	Increased in males	Increased in employees	Increased in Asia
Nearly three quarters (73%) experienced emotional exhaustion on a weekly basis			
Nearly half (46%) saw their stress levels increase when on rotation			Increased in Africa and Asia
Over a third (37%) felt more lonely when on rotation			Increased in Americas
Nearly a third (32%) found it mentally hard at the end of being off rotation to return to work		Increased in employees	
Only 43% of employees felt engaged in their work	Increased in females	Increased in managers	Increased in Middle East and North Africa. Decreased in Asia.
The vast majority of employees (84% and 79% respectively) felt that they had choice and control over their work and were satisfied with their feedback		Increased in managers	
JOB/ORGANISATIONAL RELATED OUTCOMES			
The vast majority were satisfied with the emotional support from co-workers, managers and rotational shift partners			
Nearly all employees (91%) felt a strong sense of community with their co-workers			

FAMILY/SOCIAL/WORK-LIFE

Over a third (38%) still thought about work in their spare time

44% had less contact with family and friends as a result of their job

Over half (51%) experienced work life conflict

Only 40% of workers felt they had a good work-life balance

Nearly all (96%) rotational workers were satisfied with the support they got from family and friends

PSYCHOSOCIAL/PSYCHOSOMATIC

Over a third took less exercise (35%) and had worse quality sleep (38%) when on rotation

Over a quarter (28%) were less able to eat a nutritious diet

More than three quarters (76%) consumed less alcohol on rotation than at home

Risk behaviours on average decreased when on rotation, with around a third being less likely to visit bars and nightclubs, take recreational drugs, have unprotected sex and have a relationship with a new partner

4% of respondents were more likely to have unprotected sex and 4% to have a relationship with a new sexual partner when on rotation

4.1. Changes following the COVID-19 pandemic

A strong pattern to emerge from the interview data was that although the job role itself had not officially changed, the workload had substantially increased whilst manpower had decreased as a result of the COVID-19 pandemic. This was reinforced in the survey, with 65% of workers experiencing increased job demands and 55% increased working hours. Within the interviews, there was real concern around the financial impact of the pandemic on remote rotational workers, with increased job insecurity and changes in reward packages. The pandemic also had a negative emotional impact on remote rotational workers. Many who had been on rotation for months and were unable to leave their location, or who had entered quarantine upon commencing their off-rotation period, experienced feelings of hopelessness. The survey found that more than half (56%) had increased stress and anxiety and a third felt increased loneliness. Workers were also worried about the risk of infection for themselves and their families, with nearly half (49%) being concerned for their personal safety. For those who had returned, life on rotation was very different in terms of closed leisure facilities and a consequent deleterious impact on social contact.

Interestingly however, many workers also saw COVID-19 as creating positive change, feeling more valued because of increased communications from their organisation (54%) and feeling that the organisation placed an increased priority on health and safety (56%) and employee wellbeing (46%). Those that were able to work from home during the pandemic, or were able to return home, enjoyed the positive impact on their contact with family and friends (41%) and nearly a third (29%) experienced better sleep quality.

Many interviewees foresaw that remote rotational work could become more flexible in the future, with more virtual work and greater use of communication technology. This was in many instances seen as a welcome change for the population.

The stage three survey also enabled the further exploration of the relationships between factors (such as on/off rotation, and support and resource factors) and the psychological experience of remote rotational workers. Table 25 represents a summary of these relationships. The red arrows mean that these factors make the outcomes for the remote rotational workers worse/more negative; and the green arrows mean that these factors protect and make the experience better for the workers. For instance, the first line shows that remote rotational workers who are emotionally exhausted are more likely to experience poor mental health on rotation, burnout and family conflict.

TABLE 25. SUMMARY OF FACILITATORS

SUMMARY OF FACTORS	MENTAL HEALTH ON ROTATION	MENTAL HEALTH OFF ROTATION	BURNOUT	EMPLOYEE ENGAGEMENT	FAMILY/ PSYCHOSOCIAL
PSYCHOLOGICAL					
Emotional exhaustion	▼		▼		▼
Cynicism towards job and organisation			▼		
Suicidal ideation (on-rotation)	▼	▼	▼		
Suicidal ideation (off rotation)	▼			▼	
Mood suffers whilst being away	▼				
Employee engagement					▲
Psychological wellbeing (on rotation)		▲	▲		▲
Psychological wellbeing (off rotation)	▲	▲			
SHIFT-RELATED					
Number of weeks off rotation		▲			
Shift ratio					▲
Hours per shift					▼
ORGANISATION					
Adequate job resources to perform well					▲
Organisation committed to diversity and inclusion			▲		
Satisfaction with the leisure-time activity facilities and resources available					▲

SUMMARY OF FACTORS	MENTAL HEALTH ON ROTATION	MENTAL HEALTH OFF ROTATION	BURNOUT	EMPLOYEE ENGAGEMENT	FAMILY/ PSYCHOSOCIAL
JOB					
Choice and control over how job is done	▲				
Support from family and friends				▲	▲
Manager support			▲		▲
Being able to tell colleagues if mental health would suffer on rotation				▲	
PSYCHOSOCIAL					
Work-family conflict			▼		▼
Work-life balance			▲		▼
Psychological detachment from work	▲				▲
Pressure to support family economically	▼		▲	▲	
Finding it mentally hard at the end of being off rotation to return to work		▼	▼	▼	
Spending much time with friends and family		▲			

Overall, the results indicate that remote rotational work is associated with a range of negative and potentially damaging and life-threatening outcomes, but that there are some clear factors to which this can be attributed. It is also clear that some learnings can be gained from the COVID-19 pandemic for employers and organisations. Many of these factors can be addressed at the organisational level; for instance, through organisational culture, policy and practice, training and support, and the

organisational provisions and facilities provided to remote rotational workers. Some factors are better addressed by line managers, such as creating community and peer support, and ongoing monitoring of ill health. Finally, some of the factors can be addressed by remote rotational workers themselves, or along with their manager, family and friends - for example, through help-seeking, self-awareness, coping strategies and engaging in health-promoting practices.



5

RECOMMENDATIONS

The recommendations in this section are drawn directly from the evidence gathered in all three stages of the research. They are designed to enable organisations and employers, managers and the remote rotational workers themselves - together with their colleagues, friends and families - to better support and protect the mental health of the remote rotational worker population.

5.1. Recommendations for organisations and employers

RECOMMENDATION	EXAMPLE
ORGANISATIONAL CULTURE RECOMMENDATIONS	
Prioritise the development and maintenance of a safety culture	Remote rotational worker wellbeing is impacted by the extent to which workers believe that the organisation prioritises their physical and psychological health and safety. It would be useful to assess all aspects of safety management, involvement and prioritisation, including extending and maintaining some of the measures taken during the COVID-19 pandemic
Demonstrate a commitment to diversity and inclusion	There are many aspects of remote rotational working where inequalities and inconsistencies are perceived for instance by nationality, job role and contractual arrangements. A recommendation is to build a culture where all employees are valued equally and treated with consistency.
Create an organisational openness around mental health	Within this population, although mental ill health is high, diagnosis and treatment is very low, suggesting both an unwillingness to come forward and a cultural stigma. The recommendation would therefore be to create a culture where employees feel safe to disclose existing conditions and talk to colleagues and managers if they are suffering or at risk of mental health issues. This needs to be sensitive and inclusive to the cultural/national differences around mental health conceptualisation and stigma.
POLICY AND PRACTICE RECOMMENDATIONS	
Develop a mental health and wellbeing strategy and policy	It is clear that although there is a high prevalence of mental ill health, there remains a culture of stigma and non-disclosure, and resources and support offered to maintain mental health are variable. This strategy should focus on both prevention and support for remote rotational workers' mental ill health and also include an emergency strategy to include that of suicide postvention.
Develop a process of monitoring and evaluating mental health and wellbeing	Monitor and assess the mental health of remote rotational workers over time using valid measures. This will enable tracking over time, and the identification of 'hotspots' or areas of priority within the workforce.
Consider strategies to increase the number of females working in remote rotational work	Evidence from both this and previous research suggests that females have higher wellbeing and engagement than males; however males are very much in the majority. Consider recruitment and attraction strategies to increase the female remote rotational worker population.
Build mental health support and resources into induction and onboarding processes	Equip remote rotational workers with the knowledge of the psychosocial hazards of this type of work, along with the skills and resources to manage those risks. In particular, the onboarding process should highlight and signpost support services and provisions.
Review flexible working policies and arrangements	Most workers would benefit from more flexible working arrangements. During the pandemic, many remote rotational workers were able to do a proportion of their work at home. Consider conducting a review of all roles in order to reduce necessity to be on rotation on site as much as possible.
Increase control and flexibility	Where possible, increase the individual autonomy and flexibility of workers. This could involve organisational involvement such as worker collaboration in design of social facilities, decisions about leaving site, choice over holiday periods.

Conduct a review of working hours and rotation ratios	Working hours and rotation ratios (the proportion of time spent on rotation and off rotation) are very varied across the workforce, although long working hours and lower rotation ratios (more on rotation than off) are the norm. Further, there are inconsistencies in terms of travel time included/not in off-rotation time; and the need to work and respond to work matters whilst off rotation. A consistent policy to define all arrangements would support the overall strategy of diversity and inclusion, with a focus on working hours and rotation ratio that support mental health and wellbeing. Any policy should also include a review of back-to-back arrangements.
Monitor the mental health of your remote rotational worker population	It is recommended that mental health monitoring is included in all remote rotational worker health checks. This will encourage mental health discussions in becoming part of 'normal' conversations within the organisation.
Improve communication to remote rotational workers	Remote rotational workers valued the increased communication from the organisation during the COVID-19 pandemic. Increasing the quality and quantity of organisational communication is likely to also increase these workers' perceptions of their value to the organisation. It is also particularly important in sectors where financial insecurity is real in order that employees have real and accurate information.
TRAINING AND SUPPORT SERVICES	
Provide training and education to increase awareness of mental health in self and others	Given the lack of diagnosis of mental ill health, awareness-building is key. This should focus on the importance of both help-seeking and looking out for others. Importantly, training should be provided during working hours rather than off shift in order to model the priority put upon employee wellbeing. Training should be directed both at the remote rotational workers and at their managers. Suicide awareness and prevention must be included in this provision.
Promote and review tertiary interventions for those suffering from mental ill health	Although not found in the survey, previous research has demonstrated a lack of awareness of provisions (such as Employee Assistance Programmes) for those suffering from mental ill health. Campaigns should seek to promote this provision to all workers in a number of ways and areas. Review the provision to ensure that it is tailored to the experiences of remote rotational workers, and open and appropriate to workers of all cultural backgrounds.
Build a network of mental health champions across the population	Peer support is particularly important for remote rotational workers, and therefore training a network of mental health champions to support their remote rotational-working colleagues could be very effective. Champions should be from across a range of nationalities to ensure ease of access for all.
Provide targeted support for male workers	Both this and previous research demonstrates that male remote workers experience more deleterious outcomes from this work than females do. Develop packages of support directed particularly at male employees, and, where possible, culturally specific communications in order to address specific stigmas and cultural norms around mental health





Provide targeted support for workers just returning from off rotation

The period when mental health is at its lowest is when workers are just returning from leave. Consider providing specific support for workers in the week following or in advance of their return to prepare and help them plan, which could involve a check-in with a mental health champion, reduced working hours, and self-management support materials.

Create self-management resources for remote rotational workers

In addition to training focusing on raising awareness, it is key to provide self-management strategies to these workers that include coping strategies (such as mental milestones and planning), skills such as playing an instrument or playing games, and other activities to help workers to psychologically detach and sleep better, as well as cognitive strategies such as mindfulness and meditation.

Provide financial wellbeing support and education

For many remote rotational workers, finances, and the pressure coming from supporting their families, are a source of stress. Consider building a range of financial wellbeing support tools, from training to drop-in workshops and resources.

ORGANISATIONAL PROVISION

Enable as much access to technology as possible

Remote rotational workers rely on support from their family and friends to maintain their mental health, and therefore access to the best and fastest technology is key.

Provide adequate resources for all

It has been found that not having adequate resources negatively impacts the wellbeing of remote rotational workers. This might include skills and knowledge, materials, equipment and manpower, and is likely to have been challenged further during the pandemic. Ensure that all workers are equipped with the skills, knowledge and resources to do their job well.

Prioritise provision of health-promoting resources

To include a healthy balanced diet, more opportunities to exercise in a range of ways, and resources for higher-quality sleep (for instance, noise- and light-reduction materials, and greater comfort).

Ensure social and recreational facilities are seen as work-critical

As far as possible, these should be focused on entertainment which builds both social support and health-promoting behaviours such as team sport, games and barbecues, rather than solitary provisions. Where possible, workers should be involved in decisions around the facilities available to them. Ensure that access to the facilities is consistent and fair across all groups of workers. Where these are reduced (as a result of finances or pandemic-related reasons), ensure the need for this to be clearly communicated, and that suitable alternatives are provided.

Recognise the role of the family in remote rotational worker mental health

Develop initiatives to bring families and friends closer, such as developing family support groups and links, organising family visits where possible, and providing education and resources to family such as financial planning, guidance around support needs, and healthy coping methods.

5.2. Recommendations for managers of remote rotational workers

RECOMMENDATION	EXAMPLE
COMMUNICATION	
Recognise your role as the gateway between the worker and the organisation	Consistently and regularly communicate information from the organisation to the workers, and, where possible, feed back worker views and concerns to the organisation. This is particularly key in sectors where there is perceived insecurity in order to reduce misunderstanding, concern and panic.
Focus on conversation and communication	Communication is a one-way exercise, whereas conversation is two-way. To increase workers' perceptions of being listened to, and to enable you to understand the individual within each worker, using conversation is key.
Create a team culture of openness about mental health	Given the stigma around mental health and the lack of openness, you can create positive change by demonstrating zero tolerance for stigmatising behaviours in the team, and by normalising discussions about mental health. This could include sharing your own personal stories and experiences and talking openly about how you are feeling. Prompt workers to consider their own mental health by regularly asking 'How are you, really?'.
PEER RELATIONSHIPS	
Facilitate strong peer relationships	Peer relationships are particularly important within this population and, therefore, you as a manager can play a part in encouraging the building of these relationships. This might be through enabling workers to have some control over who they work with on shift, encouraging informal conversations and camaraderie, and recommending or organising social groups and activities. Research has demonstrated that workers are more likely to open up to those of their own nationality, and therefore encouraging and supporting social groups by cultural background may be effective.
Manage the back-to-back relationship	For many workers, the back-to-back relationship is a crucial resource both instrumentally and emotionally. Ensure that there is an opportunity for cross-over and hand-over between workers and encourage communication and relationship-building.
Demonstrate constructive conflict resolution	In a confined environment, conflict is common. Ensure that you resolve conflicts in a fair, objective and appropriate way where you get involved in supporting resolution and, if possible, make use of organisational policies and procedures.

JOB DESIGN

Monitor working hours

The population typically works very long hours, which is likely to be deleterious to health. This is particularly true following the COVID-19 pandemic. Monitor this across your team to ensure fairness and consistency, and be prepared to challenge excessive working hours.

Provide control and autonomy

Enable remote rotational workers to have as much control as possible over their working lives - for instance when they can take vacation, what time they have breaks and eat, and who they work on shift with.

Enhance employee engagement

It has been found that many workers are not as engaged in their roles as they could be. Providing task variety (for instance, the option and flexibility to work across different areas) may be effective, along with giving feedback on performance, and enabling flexibility and control to workers. Seek to gain workers' views on how their roles, and their motivation could be improved.

Encourage respite wherever possible

Getting rest and respite off shift and off rotation is key to the health and productivity of workers. Role model boundary management in off-shift time. Ensure that workers take regular shifts during the day, that off-shift time is protected - such as not having training sessions or team meetings off shift; ensure that there is equality around the off-shift time each team member has; and limit work and work communications to workers off rotation.

Provide adequate job resources

Not having adequate job resources can cause reduced wellbeing in workers. Ensure that all your team members have the appropriate skills and knowledge, support and equipment to do the job. Acknowledging that the pandemic is likely to have reduced these resources, consider what you can put in place to mitigate the risks to health.

SUPPORT

Provide and enable mental health support

Educate yourself on mental health at work, and the organisational resources and support that are available. Signpost workers to the support and resources available, encourage and promote the use of peer champions, and work with employees to develop their individual coping strategies. Where you do feel an employee is suffering, arrange for referrals to the appropriate health professional.

Provide additional support following return from being off rotation

The transition back to the workplace is a touch-point for many and can be particularly hard emotionally. Prioritise support and check-ins for your team when just returning, and think about putting in work adjustments in the first week - such as reduced shifts, increased breaks and doubling-up on jobs.

5.3. Recommendations for remote rotational workers

RECOMMENDATION	EXAMPLE
ADDRESSING YOUR MENTAL HEALTH	
Talk, share and reach out	Talking about how you are feeling has been found to have a beneficial impact on your wellbeing. Talk to your peers and your manager about your wellbeing as much as you can. The more that you share your feelings, the more that others will too, and the more that you can support the wellbeing of others. If you are struggling, do seek help from the support services available to you at your organisation.
Become more aware of your own mental health	Start to recognise the signs of when you are starting to feel that you are struggling. Take time to reflect on when and what is causing you to feel like this and take action. If for instance you always struggle when just returning from being off-rotation, think about how you can manage this (for instance planning more social time, recognising that this is a short-term feeling). If it is your finances that you worry about, access support to educate yourself about financial management, and take control by building a plan of action.
CONTROL AND PLANNING	
Take control and skill up	Actively focusing on getting more autonomy in your role, along with looking at ways that you can feel more competent and skilled, have been found to be great ways to increase your wellbeing and engagement in your role. Try talking to your manager about how you could increase your autonomy and skills.
Divide and plan your time	Dividing your time on rotation and setting mental milestones for yourself can be a useful way to continue to be motivated. Think about giving yourself rewards when you reach each milestone. Enjoy the experience of planning and organising how you are going to spend your time off rotation.
HEALTH PROMOTING ACTIVITY	
Increase your health-promoting behaviours	For some remote rotational workers, being on rotation means less exercise, sleep and nutritious food. This however can have a negative impact on your mental health. Try and build time into your schedule for exercise and to be more conscious of what you eat, choosing more balanced options.
Protect your respite time	Rest and recovery are vital to both your wellbeing and your ability to continue to work effectively. Take regular breaks during your shift and where possible avoid work when off shift and off rotation. Consider ways to support yourself in mentally detaching from work, such as sleep rituals, meditation, mindfulness and breathing exercises.
Prioritise social connection	Social relationships whilst on rotation are very beneficial to health. Try to enhance your relationships by choosing social activities when off shift, joining social groups, and keeping up with friends and family.





6

REFERENCES

Albrecht, S. L., & Anglim, J. (2018). Employee engagement and emotional exhaustion of fly-in-fly-out workers: A diary study. *Australian Journal of Psychology*, 70(1), 66-75.

Andresen, M., Domsch, M. E., & Cascorbi, A. H. (2007). Working Unusual Hours and Its Relationship to Job Satisfaction: A Study of European Maritime Pilots. *Journal of Labor Research*, 28(4), 714.

Bergheim, K., Nielsen, M. B., Mearns, K., & Eid, J. (2015). The relationship between psychological capital, job satisfaction, and safety perceptions in the maritime industry. *Safety Science*, 74, 27-36.

Bjerkan, A. M. (2011). Work and health: A comparison between Norwegian onshore and offshore employees. *Work*, 40(2), 125.

Brown, A., Susomrith, P., Sitlington, H., & Scott, G. (2014). Determinants of Employee-turnover Intentions in Atypical Employment: The FIFO Mining Industry in Western Australia. *Australian Bulletin of Labour*, 40(2), 116-137.

Burke, R. J., Matthiesen, S. B., Fiskensbaum, L., Soiland, V., & Einarsen, S. (2008). Gender differences in work experiences and satisfactions of Norwegian oil rig workers. *Gender in Management*, 23(2), 137-147.

Chen, W. Q., Wong, T. W., & Yu, T. S. (2009). Mental health issues in Chinese offshore oil workers. *Occupational Medicine*, 59(8), 545-549.

Chen, W.-Q., Wong, T.-W., & Yu, T.-S. (2009). Influence of occupational stress on mental health among Chinese offshore oil workers. *Scandinavian Journal of Public Health*, 37(7), 766-773.

Dittman, C. K., Henriquez, A., & Roxburgh, N. (2016). When a non-resident worker is a non-resident parent: Investigating the family impact of fly-in, fly-out work practices in Australia. *Journal of Child and Family Studies*, 25(9), 2778-2796.

Gardner, B., Alfrey, K. L., Vandelanotte, C., & Rebar, A. L. (2018). Mental health and well-being concerns of fly-in fly-out workers and their partners in Australia: a qualitative study. *BMJ Open*, 8(3).

Harris, A., Waage, S., Ursin, H., Hansen, Å. M., Bjorvatn, B., & Eriksen, H. R. (2010). Cortisol, reaction time test and health among offshore shift workers. *Psychoneuroendocrinology*, 35(9), 1339-1347.

Henry, P., Hamilton, K., Watson, S., & McDonald, M. (2013). FIFO/DIDO mental health research report 2013. Perth: Lifeline.

Håvold, J. I. (2015). Stress on the bridge of offshore vessels: Examples from the North Sea. *Safety Science*, 71(Pt B), 160-166.

Hope, S., Øverland, S., Brun, W., & Matthiesen, S. B. (2010). Associations between sleep, risk and safety climate: A study of offshore personnel on the Norwegian continental shelf. *Safety Science*, 48(4), 469-477.

Hystad, S. W., Nielsen, M. B., & Eid, J. (2017). The impact of sleep quality, fatigue and safety climate on the perceptions of accident risk among seafarers. *European Review of Applied Psychology / Revue Européenne de Psychologie Appliquée*, 67(5), 259-267.

Kaczmarek, E. A., & Sibbel, A. M. (2008). The psychosocial well-being of children from Australian military and fly-in/fly-out (FIFO) mining families. *Community, Work & Family*, 11(3), 297-312.

Lester, L., Watson, J., Waters, S., & Cross, D. (2016). The association of fly-in fly-out employment, family connectedness, parental presence and adolescent wellbeing. *Journal of Child and Family Studies*, 25(12), 3619-3626.

McVeigh, J., MacLachlan, M., Vallières, F., Hyland, P., Stiliz, R., Cox, H., & Fraser, A. (2019). Identifying predictors of stress and job satisfaction in a sample of merchant seafarers using structural equation modeling. *Frontiers in Psychology*, 10.

- Merkus, S. L., Huysmans, M. A., Holte, K. A., van Mechelen, W., & van der Beek, A. J. (2017). An active transition from offshore work to family life: Activities that may impact recovery. *Work*, 58(3), 371.
- Mette et al. (2018). Healthy offshore workforce? A qualitative study on offshore wind employees' occupational strain, health, and coping: *MC Public Health* (2018) 18:172.
- Nielsen, M. B., Glasø, L., Matthiesen, S. B., Eid, J., & Einarsen, S. (2013). Bullying and risk-perception as health hazards on oil rigs. *Journal of Managerial Psychology*, 28(4), 367-383.
- Nielsen, M. B., Mearns, K., Matthiesen, S. B., & Eid, J. (2011). Using the Job Demands-Resources model to investigate risk perception, safety climate and job satisfaction in safety critical organizations. *Scandinavian Journal of Psychology*, 52(5), 465-475.
- Nielsen, M.B., Tvedt, S.D., Matthiesen, S.B., 2013. Prevalence and occupational predictors of psychological distress in the offshore petroleum industry: a prospective study. *Int. Arch. Occup. Environ. Health* 86 (8), 875e885.
- OGUK (2019) Health & Safety Report 2019.
- Parkes, K. R. (2015). Shift rotation, overtime, age, and anxiety as predictors of offshore sleep patterns. *Journal of Occupational Health Psychology*, 20(1), 27-39.
- Parkes, K. R. (2015). Sleep patterns of offshore day-workers in relation to overtime work and age. *Applied Ergonomics*, 48, 232-239.
- Parker, S. K., Fruhen, L., Burton, C., McQuade, S., Loveny, J., Griffin, M., & Esmond, J. (2018). Impact of FIFO work arrangements on the mental health and wellbeing of FIFO workers.
- Perring, A., Pham, K., Snow, S., & Buys, L. (2014). Investigation into the effect of infrastructure on fly-in fly-out mining workers. *The Australian Journal of Rural Health*, 22(6), 323-327.
- Riethmeister, V., Matthews, R. W., Dawson, D., de Boer, M. R., Brouwer, S., & Bültmann, U. (2019). Time-of-day and days-on-shift predict increased fatigue over two-week offshore day-shifts. *Applied Ergonomics*, 78, 157-163.
- Riethmeister, V., Bültmann, U., Gordijn, M., Brouwer, S., & De Boer, M. (2018). Investigating daily fatigue scores during two-week offshore day shifts. *Applied Ergonomics*, 71, 87-94.
- Sampson, H; Ellis, N. Seafarers' mental health and wellbeing. (2019),
- Slišković, A., & Penezić, Z. (2015). Occupational stressors, risks and health in the seafaring population. *Review of Psychology*, 22(1-2), 29-39.
- Sliskovic, A., Penezic, Z., Slišković, A., & Penezić, Z. (2017). Lifestyle factors in Croatian seafarers as relating to health and stress on board. *Work*, 56(3), 371-380.
- Sneddon, A., Mearns, K., & Flin, R. (2013). Stress, fatigue, situation awareness and safety in offshore drilling crews. *Safety Science*, 56, 80-88.
- Van Tuan, T. (2010). Meanings of sex, concepts of risk and sexual practices among migrant coal miners in Quang Ninh, Vietnam. *Culture, Health & Sexuality*, 12(Suppl 1), S31-S40.
- Waage, S., Moen, B. E., Pallesen, S., Eriksen, H. R., Ursin, H., Åkerstedt, T., & Bjorvatn, B. (2009). Shift work disorder among oil rig workers in the North Sea. *Sleep: Journal of Sleep and Sleep Disorders Research*, 32(4), 558-565.
- Wadsworth, E. J. K., Allen, P. H., McNamara, R. L., & Smith, A. P. (2008). Fatigue and health in a seafaring population. *Occupational Medicine*, 58(3), 198-204.
- Xiao, J., Guan, S., Ge, H., Tao, N., Zhang, Y., Jiang, Y., Ning, L., Liu, J., & Lian, Y. (2017). The impact of changes in work stressors and coping resources on the risk of new-onset suicide ideation among Chinese petroleum industry workers. *Journal of Psychiatric Research*, 88, 1-8.
- Xiao, J., Huang, B., Shen, H., Liu, X., Zhang, J., Zhong, Y., Wu, C., Hua, T., & Gao, Y. (2017). Association between social support and health-related quality of life among Chinese seafarers: A cross-sectional study. *PLoS ONE*, 12(11).
- Žeželj, S. P., Pelozo, O. C., Mika, F., Stamenković, S., Vranić, S. M., & Hajrić, S. Š. (2019). Anxiety and depression symptoms among gas and oil industry workers. *Occupational Medicine*, 69(1), 22-27.

About the International SOS Foundation

Launched in 2011, the International SOS Foundation has the goal of educating organisations on health and security issues impacting the global workforce. Our altruistic goal of protecting and saving lives is carried out through conducting research and thought leadership initiatives on Duty of Care, sustainability and resilience to raise organisational standards in Duty of Care. The Foundation is a registered charity and was started with a grant from International SOS. It is a fully independent, not-for-profit organisation.

internationalsosfoundation.org