AN OCCUPATIONAL STUDY OF THE MENTAL HEALTH OF FIFO/DIDO CONSTRUCTION WORKERS

Simon Colquhoun[1], Herbert C Biggs[1], Nathan Dovan[1] , Xiangyu Wang[1], Sherif Mohamed[2]

[1]*Curtin University, Perth, Western Australia; s.colquhoun@curtin.edu.au; herbert.biggs@curtin.edu.au; Xiangyu.Wang@curtin.edu.au*
[2]*Griffith University, Brisbane, Australia; s.mohamed@griffith.edu.au*
[*]*Corresponding author (s.colquhoun@curtin.edu.au)*

ABSTRACT

Mental health is a growing concern in Australia. Statistics indicate that one in every five Australians experience a mental illness (NSW Mental Health Commission, 2014). Mental health in workplace compensation claims have steadily begun to increase by 17% since 2001 (Safe Work Australia, 2015). Within Australia, there is a growing demand, and reliance, on personnel to work fly-in, fly-out (FIFO) or drive-in, drive-out (DIDO) rosters, particularly within the mineral, resource and infrastructure sectors. While there are many organisational benefits to employing FIFO/DIDO rosters, there are oft-cited adverse effects on the workers themselves. The issues in employing these workforces are becoming more apparent, and include a range of physical, mental, safety and community challenges. However, one impact of remote work, that has received little attention within the research is the impact of psycho-social isolation. 15 focus groups were conducted across four road /rail construction sites around Australia. Specifically, the Pilbara (two sites), Cairns and Broken Hill. Data was analysed using thematic analysis and accompanied with relevant quotes. This research found that worker psycho-social isolation in remote sites within the construction industry was a significant issue. Communication and trust levels impacted on worker mental health. This isolation factor occurred across a number of levels, between the worker and their peers; between the worker and their direct supervisors and between the worker and their families. A comparison of different types of construction workers found that where psycho-social isolation was lower, better worker mental health was reported. However, when it was higher, this research found greater problems of worker mental health. The outcomes, and key recommendations provide a starting point for improving the health and well-being of workers employed in this FIFO/DIDO environment, as well as providing further improvements to their familial relationships.

Keywords: Remote Workforce; Fly-in, Fly-out; Drive-in, Drive-out; Construction Sector; Mental Health; Psychosocial Isolation; Relationships

1. INTRODUCTION

In Australia, the total economic cost of work-related injuries and illnesses for the 2008–09 financial year is estimated to be $60.6 billion dollars, representing 4.8 per cent of Gross Domestic Product (Safe Work Australia, 2012).

Since 2000, Australia has seen a large growth in the mineral, resource and infrastructure sectors, with operations expanding to rural and remote locations, leading to an increase in demand for personnel to work fly-in, fly-out (FIFO) or drive-in, drive out (DIDO) rosters. Such models of work have become increasingly popular as it takes into account the relatively short lifespan of sites, and is considered more economical than building permanent accommodation or paying for rent (Lifeline WA, 2013), helping organisations remain economically competitive.

While there are many organisational benefits to employing FIFO/DIDO rosters, there are oft-cited adverse

effects on the workers themselves. The issues in employing these workforces are becoming more apparent, and include a range of physical, mental, safety and community challenges. Research evaluating the impacts of fly-in, fly-out operations in Australia's construction industry has not been conducted to date. In February 2013 the Australian House of Representatives Standing Committee on Regional Australia made 21 recommendations aimed at improving these operations. It points out that the remote construction industry workforce is primarily a short-term temporary workforce and many workers are employed on a fly-in, fly-out basis. This is supported by evidence from Mineral Council of Australia. Of these 21 recommendations, two were particularly related to this research. Firstly, that the Commonwealth Government commission research to assess the health impact of fly-in, fly-out and drive in-drive out work on the workers and their lifestyles. And from this develop a comprehensive policy to respond to their particular needs. Secondly, that the Commonwealth Government commission research to assess the impact on children and family relationships of a long-term fly-in, fly-out/drive-in, drive-out parent (Parliament of Australia., 2013).

Also, a discussion paper released by the WA Government's Education and Health Standing Committee into the mental health impacts of fly-in, fly out work in 2014 highlighted the lack of quality research on the mental health of FIFO workers. They felt research was needed into whether FIFO work practices were safe and how organisations managed psychological health risks. They noted that informal information indicated that there were 9 suspected suicides and that it was the organisation's responsibility to address issues related to mental health concerns. For example, the unaccompanied travel of at risk employees to their home base (Legislative Assembly Parliament of Western Australian, 2014).

Research evaluating the impacts of fly-in, fly-out operations in Australia has been limited, two notable large scale studies have been undertaken with FIFO workers. The first, completed by Lifeline, WA (2013) surveyed 924 FIFO workers to gain an understanding of the mental health issues associated with FIFO work. The results of this study identified women were more likely to access support services than men and that older workers were less likely to access support. It also found that partnered workers were more likely to report greater overall stress and workers with children on high compression rosters were more likely to report lower quality relationships with friends and family (Lifeline WA, 2013). This study gives one of the most comprehensive understandings of mental health issues faced by Western Australian workers but the results cannot be validated outside of WA and the study did not provide a control group to allow for comparisons.

The second study (Joyce, Tomlin, Somerford, & Weeramanthri, 2013), was much larger, and attempted to rectify the limitations of previous studies by comparing FIFO work against shift workers and workers who did not work in either of these work types. However, this study was still limited by the use of data being specific to Western Australia. Joyce and colleagues utilised the WA Health and Wellbeing Surveillance System to inform on health issues faced by FIFO workers, shift workers and other categories of workers. Not only was this study limited by its scope, the nature of the data collection meant the researchers could only look at quantifiable physical health concerns, such as BMI (body-mass index) measures, alcohol consumption and levels of physical activity. As a consequence, the results of the study were not able to examine mental health issues, with data collected via self-reporting of already diagnosed conditions meaning individuals, whose mental health concerns have, to date, gone undiagnosed, may have been missed. These concerns have often been raised in the psychosocial impact discussions in FIFO literature, highlighting that individuals on-site may be suffering from a mental health issue, but are not aware of it, and consequently do not seek help as a result (Torkington, Larkins, & Gupta, 2011). This key finding was also reported in the Lifeline WA report, which reiterated concerns about the lack of mental health literacy, particularly in male workers, in the FIFO population.

1.1. WORKER MENTAL HEALTH AND COMMUNICATION

Mental health is a growing concern in Australia. Statistics indicate that one in every five Australians experience a mental illness (Mental Health Commission of NSW, 2014). Mental health in workplace compensation claims have steadily begun to increase by 17% since 2001 (Safe Work Australia,

2015). The construction industry is dominated by a predominantly male based workforce. Traditionally, Australian men are reluctant to seek professional mental health services because of the associated stigma. However, where psycho-social isolation is present supports become essential.

The mining industry in Australia continues to be one of the most physically and psychologically demanding occupations (Lovell & Critchley, 2010). Examination of the literature suggests that onsite personnel experience more psychological and physical symptoms of stress in their first year of work, compared to most other industries (Gibbons, 2012). Further factors contributing to an increase in stress included: long work shifts, 'hot seating' (whereby drivers of vehicles are immediately changed over) (Burke, 2011; Gibbons, 2012) and the increase in fly-in, fly-out (FIFO)/ drive-in, drive-out (DIDO) employment (Torkington et al., 2011). A previously released report by Althouse and Hurrell (2001), identified in a sample of 486 miners, job stress was a direct result of excessive workloads, job demands and a poor supervisor relationship. Further, employees who were employed via FIFO/DIDO reported higher incidence of psychological strain and family/relationship issues, compared to their residential colleagues (Torkington et al., 2011).

Workplaces have become increasingly concerned with the impact of stress on employees, with quantitative demands, work tempo, predictability and role clarity amongst the areas that are often examined (Pejtersen, Tage Søndergaard, Borg, & Bjorner, 2012; Richardson & Rothstein, 2008). A study by Mueller and colleagues (2008) examined the physical health impacts of long shifts and night shifts on workers in a remote Australian minerals extraction site. Their results indicated concerns such as high blood pressure, excessive sleepiness and strained eyes, but also included psychological concerns including tension, irritability and nervousness. Further, the study reported that poor sleep patterns of miners had as much impact as having a 0.05 level blood alcohol content. Similar mental health concerns were identified when comparing construction workers on site, compared to design consultants off-site, with the former group found to score significantly higher on all work stress items (Love, Edwards, & Irani, 2010).

However, one impact of remote work, that has received little attention within the research is the impact of social isolation. Communication has been identified by Chan et al. (2016) as an important factor for occupational health of ethnic minority construction workers in Hong Kong. Social isolation refers to "The feeling of being segregated from one's community" (Kalekin-Fishman, 1996; p97). This typically experienced as a form of personal stress (Neal and Collas, 2000) and can lead to other more serious types of mental ill health (York Cornwell & Waite, 2009). While this is remote worker research, it represents a concentrated look at worker behaviour which can be equally applied to local construction industry as well. St John (2005) and Dollard Knott (2004) argued that worker stress can affect their performance, absenteeism and workplace safety.

2. STUDY OBJECTIVES

The objectives of the current study were to understand more clearly how employee relationships are affected by the FIFO/DIDO working environment and investigate solutions. This project sought to address some of these concerns and in particular to understand more fully the mutual impacts between workplace health, and personal and social relationships. Also, to explore strategies and actions that better meet the needs of employers, employees and their families.

3. METHOD

Data was collected via the use of semi-structured focus groups. The 15 focus groups (consisting of 5-6 participants per group) were conducted across four road or rail construction sites around Australia. Specifically, the Pilbara (two sites), Cairns and Broken Hill.

<u>Pilbara Site One</u> The site is located 115 kilometres north of Newman. It currently employs 7200 workers and consists of the number of temporary camps (FIFO).

<u>Pilbara Site Two</u> was a Liquefied Natural Gas plant under construction in the Pilbara region of Western Australia. The plant was 13 kilometres from the town of Onslow which itself is 1400 kilometres north of Perth WA. Accommodation and facilities are located on site for the 4000 workforce personnel who commute nationally and internationally to the worksite (FIFO).

<u>Cairns Site</u> had camp sites which are temporary, as their focus was more short term projects. While the main depot was located in Cairns, Queensland, employees often travelled a few hundred KM north to where they work. Their focus was mainly road construction (DIDO).

<u>Broken Hill Site</u> had temporary camp accommodation, but they did have one permanent camp site. The facilities there were basic, consisting of standard twin share dongas (transportable temporary accommodation units) and camper vans. Otherwise, these employees travelled to Broken Hill or Tibooburra, which, from the sites visited, were on average, a 2 hour trip. Again, their focus was more on road construction (DIDO).

The focus group data was collected using a semi-structured format. It addressed two key questions with prompts:

- How do you feel employee family relationships are affected by the FIFO/DIDO working environment?
- What do you feel are the psychosocial health implications (such as isolation, loneliness) for employees FIFO/DIDO working environment?

These prompts referred to work-life balance, management support, work pressure and family pressure, job satisfaction, personal and physical health, roster and work demands and sleep.

4. RESULTS

The results presented here, was analysed using thematic analysis which draws out the key themes from the focus groups with accompanying quotes to highlight each theme. The majority of participants were 35-64 years old, male, in relationships and worked 4/1 rosters.

The study found that on site communication to family and friends is problematic, particularly for 4 and 1 rosters (4 weeks on, one week off). Many of the camps don't have adequate reception and you get problems at peak times. This can have a real impact on the relationship with families back home. Having privacy is made more difficult for workers as mobile phone reception is not available in rooms. For East Coasters, the time differences and the long shifts means timing of calls is difficult.

There is considerable stress associated for workers and their families in being unable to help in an emergency. This is intensified by the inability to be contacted in work time and the poor mobile reception. Added to this because of the rosters, workers are missing important family events. For those with children, the child is often disappointed.

The long rosters make communication with your partner more difficult both on-site and off-site. This is intensified because of reception difficulties on site. This can and has led to the breakdown of a number of marriages. Where it works is when there is understanding from the partner of the reason for the work and efforts of both sides to work at communication. The feeling of isolation is a real problem because of the long shifts, poor reception, roster cycle and location. The window of opportunity to communicate with others (family or co-workers) is difficult and at times workers can feel very alone and this can extend over long periods particularly for remote FIFO workers.

Management support in terms of training and limited financial support has led to family stress and financial stress. Family problems arise through a lack of adequate training in work-family adjustment. There can also be

financial problems due to a lack of organisational financial support or training in how to manage money properly, particularly for the younger workers. Workers complain about a lack of support from their supervisors in times of need. Being casual makes them feel vulnerable and creates stress. For FIFO/DIDO workers the drawcard is the money. They are on very good wages and are happy with that.

Workers highlighted the social support difficulties through a lack of physical space to communicate on site. They also seemed to be struggling with "motelling" (different rooms each time during roster cycle). They are unable to create a home environment e.g., family pictures, bland room colour, no visual stimulation outside rooms.

It is important to note that DIDO workers, and workers employed on a 'permanent site' – where facilities and resources such as food halls, wet bars and recreational activities are more readily available compared to temporary/camp sites- were generally happier. However, socialisation, and its link to alcohol is common for the DIDO sites in particular.

There does appear to be some irritability and stress associated with the long shifts. Basically workers eat, sleep, and work a majority of the time. Physical health is an issue due to poor quality food at sites in some circumstances. Whilst at others, quality and volume of food can lead to potential harmful weight gain.

There does appear to be some stress due to roster cycles however, this differs depending on employee circumstances. The work shift is fine for most employees; however suitability of length of shift may vary across employee. Generally, there is even desire for longer shifts for DIDO workers particularly because they are away anyway. There is clearly stress associated with changes in the construction industry (less financially buoyant). Contract continuation is a real issue for employees.

5. DISCUSSION

The most important issue, consistent across all sites and work conditions, was an increased need for workers to be able to communicate and stay in touch with their families and friends back home. This was raised as a serious issue, as previously mentioned, with isolation being a major contributing factor and workers often feeling like strangers in their own home due to not being able to communicate via any medium (landline, mobile, internet, skype etc.) whilst on site. To be able to maintain regular contact with family was a key issue and was reported to increase perceived satisfaction of workers.

The current research consistently found that worker isolation in remote sites within the construction industry was a significant issue. While formal communication from supervisors and management was good, workers level of trust in informal support from management was impacting on worker mental health. This isolation factor occurred across a number of levels, between the worker and their peers; between the worker and their direct supervisors and between the worker and their families. A comparison of FIFO and DIDO remote construction workers found that psycho-social isolation for FIFO workers was higher, and this research found greater problems of worker mental health.

A common theme across all sites, regardless of whether the workforce was FIFO or DIDO, was a strong need for more training. In particular, this training was identified specifically around issues of financial planning/financial aid and realistic issues the workforce will face in regards to their health and well-being. As many of the current training and education methods were ad hoc, or learnt through experience whilst on the job, or discussions with their colleagues, there was a strong suggestion that the workforce needed more education and training on these key issues whilst employed as a FIFO/DIDO worker. Further, there was a growing need for more re-integration training for workers to return to the 'real world' such as mental health awareness training and family-work adjustment training.

Qualitative data also revealed that rosters were another area requiring change. Many of the FIFO workers for instance were unanimous in their support for having a 10 day off roster. This included having two consecutive weekends, as part of the 10 days. This was to allow for greater opportunity to have downtime and spend with their families away from work. While this was a common suggestion, many of the workers also said if this was adopted, they would have no qualms working the 3 or 4 weeks, as they understood they were paid to do a job. Of greater importance to them, was sensing they had the opportunity to have genuine time off away from their work.

Data from qualitative component also indicated that organisations like Mates in Construction were seen as important to worker mental health. A number of workers recognised these supports as important and wished for their work to continue on-site. This recommendation is consistent with outcomes from the WA inquiry.

The results of this study have led to the proposal of four key recommendations:
1. Improvement of communication between workers and management.
2. The organisation to offer training to workers and in some cases their direct supervisors addressing mental health and worker/family relationships.
3. The organisation to offer rosters based on the worker's specific need.
4. The organisation to continue support and promote external organisations such as Mates in Construction.

6. CONCLUSIONS

Employees who work FIFO/DIDO, and participated in this research have identified consistent issues with this working environment. As a positive, the workers believed that the work they were doing was meaningful, and important to them. They also reported that from a management perspective, safety remained a key priority. However, it was also important that more was done to improve the top-down communication, with a consistent feeling of a lack of trust amongst workers with information that came from management.

Importantly, there were also consistent, negative impacts reported that this work had on family life, regardless of whether a worker was FIFO or DIDO. These included, a drain on energy and time; isolation; lack of available communication with family; workplace stress; shifts rosters and work hours; an uncertain work future, and fatigue, particularly associated with travel and roster cycles.

Outcomes from the focus group also appear to identify key differences between temporary and permanent sites and FIFO versus DIDO workers. The differences highlighted by the availability of different facilities (both physical and communication) and opportunities for social interaction. However what appears to be consistent across all sites that the research team visited, are clear issues about the psychological and physical health of the workers.

This current research has been carried out across sites in Western Australia, Queensland and New South Wales. The outcomes, and key recommendations provide a starting point for improving the health and well-being of workers employed in this FIFO/DIDO environment, as well as providing further improvements to their familial and working relationships.

7. REFERENCES

Althouse, R., & Hurrell, J. (2001). "Analysis of job stress and coal mining (PB-274796)."
http://www.osti.gov/energycitations/product.biblio.jsp?osti_id=6818131

Burke, J. (2011). "In The Hot Seat." http://www.miningaustralia.com.au/features/in-the-hot-seat

Chan, A., Ali Javed, A., Lyn, S., Hon, C., & Wong, F. "Strategies for improving safety and health of ethnic minoirty construction workers." *Journal of Construction Engineering and Management*, *142(2)* doi: http://dx.doi.org/10.1061/(ASCE)CO.1943-7862.0001148

Dollard, M., & Knott, V. (2004). "Incorporating psychosocial issues into our conceptual models of OHS." *Occupational Health and Safety- Australia and New Zealand, 4(20),* 13.

Gibbons, H. (2012). *"Mine Site Health: Stressing an Alternative."* http://www.miningaustralia.com.au/features/mine-site-health-stressing-an-alternative

Joyce, S. J., Tomlin, S. M., Somerford, P. J., & Weeramanthri, T. S. (2013). "Health behaviours and outcomes associated with fly-in fly-out and shift workers in Western Australia." *Internal Medicine Journal, 43*, 440–444. doi:http://doi.org/10.1111/j.1445-5994.2012.02885.x

Kalekin-Fishman, D. (1996). "Tracing the growth of alienation: enculturation, socialization, and schooling in a democracy. In Geyer, F. (Ed.)., Alienation, Ethnicity, and Postmodernism (pp.95-106)" Westport: Greenwood.

Legislative Assembly Parliament of Western Australia. (2014). "Shining a light on FIFO Mental Health: A discussion paper (November)." Perth, Parliament of Western Australia.

Lifeline WA. (2013). *"FIFO/DIDO Mental Health Research Report 2013."* Retrieved from Western Australia: Sellenger Centre for Research in Law, Justice and Social Change:

Love, P. E. D., Edwards, D. J., & Irani, Z. (2010). "Work Stress, Support, and Mental Health in Construction." *Journal of Construction Engineering and Management, 136*, 650–658. doi:http://doi.org/10.1061/(ASCE)CO.1943-7862.0000165

Lovell, J., & Critchley, J. (2010). "Women living in a remote Australian mining community: Exploring their psychological well-being." *Australian Journal of Rural Health, 18*(3), 125-130.

Mental Health Commission of NSW (2014). "Strategies for adopting and strengthening e-mental health." NSW: Sax Institute.

Mueller, R., Carter, A., & Williamson, A. (2008). "Epidemiological Diagnosis of Occupational Fatigue in a Fly-In–Fly-Out Operation of the Mineral Industry." *Annals of Occupational Hygiene, 52*(1), 63-72. doi:10.1093/annhyg/mem058

Neal, A. G., & Collas, S. F. (2000). *"Intimacy and alienation: Forms of estrangement in female/male relationships."* New York: Garland.

Parliament of Australia. (2013). "Cancer of the Bush or Salvation for our Cities." http://www.aph.gov.au/Parliamentary_Business/Committees/House_of_representatives_Committees?url=ra/fifodido/report.htm

Pejtersen, J. H., Tage Søndergaard, K., Borg, V., & Bjorner, J. B. (2012). "The second version of the Copenhagen psychosocial Questionnaire (COPSOQ II)." *3rd International COPSOQ Workshop, 100*. doi:http://doi.org/10.1177/1403494809349858

Richardson, K. M., & Rothstein, H. R. (2008). "Effects of occupational stress management intervention programs: A meta-analysis." *Journal of Occupational Health Psychology, 13*(1), 69–93. doi:http://doi.org/10.1037/1076-8998.13.1.69

Safe Work Australia. (2013). "The incidence of accepted workers' compensation claims for mental stress in Australia." *(Publication No. 978-0-642-78719-4).* http://www.safeworkaustralia.gov.au/sites/swa/about/publications/pages/workers-compensation-claims-for-mental-stress-in-australia

Safe Work Australia (2015). *"Australian Worker's Compensation Statistics, 2012-13."* Canberra: Safe Work Australia.

St John, T. (2005). "Mental health at work: The hard facts." *Training Journal*, 5.

Torkington, A. M., Larkins, S., & Gupta, T. S. (2011). The psychosocial impacts of fly-in fly-out and drive-in drive-out mining on mining employees: A qualitative study. *Australian Journal of Rural Health, 19*(3), 135-141. doi:10.1111/j.1440-1584.2011.01205.x

York Cornwell, E., & Waite, L. (2009). "Social disconnectedness: Perceived isolation, and health among older adults". *Journal of Health Social Behaviour, 50(1)*, 31-48.

ACKNOWLEDGEMENTS