

School of Psychology

**Between a Rock and a Hard Place: Exploring Ways to Optimise
Wellbeing for People Who Work Fly-in, Fly-out in the Australian
Mining Industry**

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Doctor of Philosophy (Psychology)
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Declaration

To the best of my knowledge and belief this thesis contains no material previously published by any other person except where due acknowledgement has been made.

This thesis contains no material which has been accepted for the award of any other degree or diploma in any university.

The research presented and reported in this thesis was conducted in accordance with the National Health and Medical Research Council National Statement on Ethical Conduct in Human Research (2007) – updated 2018. The proposed research study received human research ethics approval from the Curtin University Human Research Ethics Committee (EC99262), Approval Number RDHS-01-14.

Signature:

Date:

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Abstract

The situation involving people who fly-in, fly-out (FIFO) in the Australian mining industry has reached a point of crisis, primarily concerning mental ill health and incidences of suicide. Much of the research about FIFO focuses on the magnitude of psychological distress, turnover, help seeking, and general negative experiences of FIFO. In contrast, this project takes a strengths-based approach to investigate what is needed to optimise the wellbeing of people who FIFO in the Australian mining industry.

The aim of this research was to understand how to strengthen support networks and transform work conditions for people who FIFO in order to promote wellbeing. The current research was approached using a contextualist epistemology from a Community Psychology perspective and employed an explanatory sequential mixed methods design, in order to investigate the role of sense of community, social support, and on-site lifestyle factors for supporting mental health for people who FIFO.

The project included four objectives. Objective 1 was to develop and validate a scale of a FIFO On-site Lifestyle Satisfaction, and Objective 2 was to model social and community support with mental health outcomes. Objective 3 was to identify preferred supports to address key challenges of the FIFO lifestyle. The final Objective 4 was to integrate the quantitative and qualitative findings in order to inform the development of final recommendations of ways to optimise wellbeing for people who FIFO in the Australian mining industry.

These objectives were addressed using three research phases that aligned with the sequential explanatory design. In Phase One I used a quantitative prospective survey. Constructs assessed included sense of community, social support, alcohol use, depression, anxiety, stress, satisfaction with life, and satisfaction with key lifestyle factors on the mine site, with additional open-ended questions about participants' experience of support while working FIFO. Participants were recruited from around Australia ($N=391$). Analyses to meet Objective 1 included exploratory factor analysis, confirmatory factor analysis, and qualitative content analysis of open-ended survey questions to assess construct validity. The FIFO On-site Lifestyle Satisfaction Scale demonstrated good psychometric properties. For Objective 2, structural equation modelling was used, and follow up analysis of the prospective data using the matched case sample employed multiple regression analysis. Results indicated that participants had higher levels of depression and anxiety, and lower levels of social support and satisfaction with life than those in general population studies. Support from social and community networks was associated with better wellbeing, indicating that social and community connectedness and on-site lifestyle factors support wellbeing for people who FIFO.

Follow up analysis indicated that social and community support at Time 1 accounted for approximately 22% of the variance in Time 2 depression, anxiety, and stress, and satisfaction with life, suggesting that these networks play a role in providing ongoing support for people who FIFO.

The aim of Phase Two was to gain greater depth and explanation of Phase One results, and as such explored the key challenges and support strategies for living FIFO to meet Objective 3. Thematic analysis of 20 qualitative interviews (10 men and 10 women) was conducted. Themes relating to the challenges of FIFO included the inflexible nature of FIFO work, experiences with suicide by others, and issues with hyper-masculine work culture. Themes relating to support strategies included ways to organise the lifestyle to maintain autonomy, enhance connection with support networks, and build mine site camps to foster community.

Phase Three focused on the integration of quantitative and qualitative findings, using integrated insights to inform the development of final recommendations of ways to optimise wellbeing for people who FIFO. Through Objective 4 I extended on methods of integration by adapting a joint display to include the Community Psychology principle of multiple levels of change. These recommendations then underwent respondent validation, and participant feedback was incorporated. Final recommendations included promoting sustainable work practices, supporting social and community connection on and off site, developing sense of community, and transforming the hyper-masculine work culture.

Findings from this study have methodological, theoretical, and applied implications. Through using the mixed method design, an extended method for integration that incorporated Community Psychology theory was developed. Theoretically, this study highlighted the problematic hyper-masculine work culture as a key challenge people who FIFO experience. Findings from this study are consistent with other studies that recognise the elevated rates of poor mental health and distinct challenges of the lifestyle for this population, and extends on this to specify applied strategies that harness social support, sense of community, and FIFO on-site lifestyle satisfaction to promote wellbeing. These findings were submitted to the Department of Mines, Industry Regulation and Safety to contribute to the development of the FIFO Code of Practice for Mentally Healthy Workplaces, and the supporting online informational resources.

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List of Abbreviations

AUDIT	Alcohol Use Disorders Identification Test
BSCS	Brief Sense of Community Scale
CFA	Confirmatory Factor Analysis
CFI	Comparative fit index
DASS	Depression Anxiety Stress Scale
DIDO	Drive-in, Drive-out
EFA	Exploratory Factor Analysis
FIFO	Fly-in, Fly-out
FOLSS	FIFO On-site Lifestyle Satisfaction Scale
GFI	Goodness of fit index
MHO	Mental Health Outcomes
MRA	Multiple Regression Analysis
MSPSS	Multidimensional Scale of Perceived Social Support
NNFI	Non-normed fit index
RMSEA	Root mean square error of approximation
SEM	Structural Equation Modelling
SOC	Sense of Community
SPSS	Statistical Package for Social Sciences
SRMR	Standardised root mean square residual
SWLS	Satisfaction with Life Scale

Ethos

*When you find people who start from a position
where human beings are at the core,
as opposed to a position where profit is at the core,
the solutions can be very different.*

- Audre Lorde (1984)

Chapter 1 Introduction

A crisis is a terrible thing
to waste.

- Paul Romer (Rosenthal, 2009)

1.1 Background

The situation involving people who fly-in, fly-out (FIFO) has reached a point of crisis, primarily concerning mental health and incidences of suicide (Considine et al., 2017; Education and Health Standing Committee, 2015; Tuck, Temple, & Sipek, 2013). While the enduring problems associated with this line of work have generated a large amount of public concern and criticism of the industry and work arrangements (e.g. Barry, 2017), provides an opportunity and generates motivation to further examine the issues and use different perspectives to find potential solutions. While the mining industry in Australia presents issues in multiple domains (Zhang & Moffat, 2015), including environmental concerns (Weng, Mudd, Martin, & Boyle, 2012), land rights of Aboriginal people (Langton & Mazel, 2008), destruction of native habitats and use of water (Brueckner, Durey, Mayes, & Pforr, 2014), impact on regional towns and communities (Carrington & Pereira, 2011), economic pressures associated with being a central industry in Australia (Mason, Paxton, Parsons, Parr, & Moffat, 2014), economy shifts and subsequent impacts on business (Maxwell, 2017), this project is concerned only with the mental health and wellbeing of people who engage in FIFO work in order to target the issue of poor mental health recognised as being associated with working in a FIFO work arrangement (Vojnovic, 2016).

Most of what is known about working FIFO is communicated through government funded reports (e.g. Education and Health Standing Committee, 2015; Infrastructure Planning and Natural Resources Committee, 2015; Parker et al., 2018), mental health organisation reports (e.g. Henry, Hamilton, Watson, & Macdonald, 2013), as well as popular media and anecdotal evidence (e.g. Barry, 2017; Coghill & Blackmore, 2014; Lannin, 2014; Stünzner, 2018). The research literature base regarding people who FIFO and mental health is slowly developing, however there remain substantial gaps in the knowledge base particularly in regards to mental health and specifically what changes need to be made to support wellbeing (Bowers, Lo, Miller, Mawren, & Jones, 2018; Parker et al., 2018). The attention to FIFO mental health speaks to the urgency of the change needed within this industry. New studies and reports did become available during the course of this research (for example, Education and Health Standing Committee, 2015; Gardner, Alfrey, Vandelanotte, & Rebar, 2018; Parker et al.,

2018; Tynan et al., 2016) and recurring issues were identified such as psychological distress, depression and anxiety, as well as loneliness and use of alcohol indicating the issues remain ongoing. The recommendations for changes posed within research to address the identified issues remain brief, and there is an identified need for further empirical research to direct change efforts to address these ongoing issues (Parker et al., 2018).

1.2 The Current Research

In recognition of the state of urgency to address the mental health concerns of people who FIFO and attend to the government inquiry's call for more independent research into the impacts on mental health associated with FIFO work arrangements (Education and Health Standing Committee, 2015), I undertook the current research to answer the research question 'what is needed to optimise the wellbeing of people who FIFO in the Australian mining industry?' In the current research I sought to approach the issue of FIFO mental health from a perspective that acknowledges the surrounding context of the individual, as such I utilised a Community Psychology approach and mixed method design to investigate sense of community, social support, and on-site lifestyle factors for supporting mental health for people who FIFO. By using a Community Psychology approach, the individual is recognised in context, including the geographic environment, social connections, community resources, and culture they are embedded within (Kloos et al., 2012). This perspective is therefore able to contest the neoliberal messaging of responsabilisation (Trnka & Trundle, 2014), and take into consideration the hyper-masculine culture that is pervasive in mining, and recognised as harmful for mental health (Seidler, Dawes, Rice, Oliffe, & Dhillon, 2016; Stergiou-Kita et al., 2015). I endeavoured to take a strengths-based approach in developing proposed recommendations for this study, as the dearth of literature currently available has focused upon measuring the magnitude of psychological distress, help seeking, turnover, and general negative experiences of FIFO. In contrast, my aim with this research was to understand how to strengthen social and community connectedness and transform work conditions of FIFO in order to promote wellbeing.

1.3 Organisation of Thesis

This thesis is organised in three phases with related objectives (discussed in Chapter 3). As a mixed method project, although the quantitative and qualitative results are described in individual chapters they remain mixed through Phase One informing and guiding Phase Two, sampling from the same participant pool for both quantitative and qualitative data collection, as well as the final findings being integrated in Phase Three. This was to align with the explanatory sequential design selected to guide this project (discussed in Chapter 4). Each

chapter will be briefly described below in order to introduce how this thesis is organised (see Figure 1), and a summary of the content to expect in each chapter is provided.

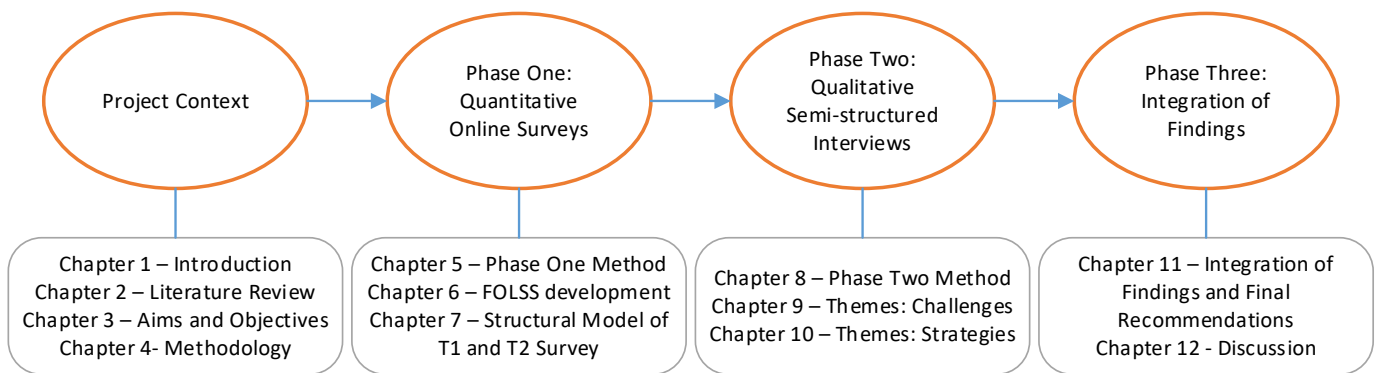


Figure 1. Flow Diagram of Thesis Structure

Chapter 2 contains a review of the literature to give background information about FIFO and mining, and describes the research conducted within the relevant areas for this project. This is designed as a traditional literature review, and contains information only within the scope of this project. However, to contextualise the area and convey the significance of the mining industry in Australia, a brief history of mining within Australia is included.

The specific aims and objectives are described in Chapter 3. As this project is embedded within Community Psychology, the aims and objectives are geared towards seeking to understand both the individual levels of wellbeing as well as the levels of sense of community, social support, as well as lifestyle factors on mine sites. The basis of this research is to look beyond measuring the individual experience and documenting hardship and look towards the role of social connectedness to mitigate the risks to wellbeing that are associated with FIFO work (Bowers et al., 2018).

In Chapter 4 I describe the Methodology which guided this project, including my Contextualist epistemology, Community Psychology theoretical position, researcher reflexivity statement, use of mixed methods research, and the explanatory sequential research design. The related methods used for each phase of the project are described in individual chapters and presented before the findings of their associated phase.

The first of these method chapters is presented in Chapter 5. Here I describe the prospective survey that was used to collect the quantitative data for Phase One. The full survey was completed by participants at two time points (Time 1 and Time 2) with a six month interval, and to assist with the development of a new scale (the FIFO On-site Lifestyle Satisfaction Scale, FOLSS, described in Chapter 6), a retest survey was completed by participants after a 2 week interval from the full survey at Time 1. The FOLSS scale was analysed using exploratory factor analysis in SPSS v.22 and confirmatory factor analysis in

AMOS. The data from the surveys at Time 1 and Time 2 were analysed using structural equation modelling in AMOS (Arbuckle, 2014).

The results of Phase One are described in Chapter 6 and Chapter 7. The first of these contains the details of the development and validation of the FIFO On-site Lifestyle Satisfaction Scale (FOLSS) including the psychometric properties. In Chapter 7 the results of the structural models from Time 1 and Time 2 are described. The model tested the predictors of sense of community on-site and at home, perceived social support, alcohol use, and FIFO on-site lifestyle satisfaction for the outcome variables of depression, anxiety, and stress, and satisfaction with life.

Phase Two begins with Chapter 8, which describes the method for conducting the qualitative explanatory component of the project. To strengthen the mixed method design, sample integration was done by drawing participants for the interviews from the survey participants in Phase One. In addition to this, the results from Phase One contributed to the interview guide development, and development of a card sort tool to use in the interviews. The transcribed interviews were analysed using Thematic Analysis (Braun & Clarke, 2006).

I present the qualitative findings for Phase Two in Chapter 9 and Chapter 10. The initial aim of the qualitative explanatory component was to focus on strategies to assist in making the FIFO lifestyle more sustainable, however, participants described in depth the challenges they had experienced to such an extent I deemed it necessary to include an additional chapter to describe these. Thus, Chapter 9 contains the themes relating to the challenges participants described about their FIFO lifestyle, and Chapter 10 contains the themes related to how participants posed to make FIFO work, work.

The process of integration of the quantitative and qualitative findings, and the subsequent informed recommendations are presented in Chapter 11. As a key contribution of this research I include in this chapter an adapted methodology for integrating findings using an explanatory sequential mixed method design that I developed as part of this project. Community Psychology change principles of first and second-order change are embedded in this integration approach, and therefore the final recommendations are presented at two levels of change. In Chapter 12, I give a succinct overview of the project findings, the methodological, theoretical, and applied contributions of my research, discuss the strengths and limitations of the project and pose possible directions for future research.

To open each chapter, there will be a 'Pre-start'; a tribute to the pre-start meeting often adopted in the mining sector prior to commencing a shift. To close each chapter a summary titled 'Handover' will describe the core components of the chapter, and where to next. This references the common practice at shift changeover, where tasks and updates are handed over to the next worker on shift, with essential information and instructions shared.

Chapter 2 Literature Review

2.1 Pre-start

In this chapter I will review the literature relevant to the key components of the project. I will give context to mining in Australia, describe the FIFO lifestyle, the association with mental health, and identified benefits and challenges. I will then explore the FIFO lifestyle in relation to the key areas relevant to the project, including FIFO mental health concerns and disconnection from support networks, sense of community, social support, and life satisfaction.

2.2 Mining: Boom Periods in Australia

Mining is central to Australia's history and identity, with five major boom periods being recorded to date (Battellino, 2010; Tonts, McKenzie, & Plummer, 2016). The mineral rich earth that Australia boasts has been an ongoing attraction for economic growth and prosperity, from pre-federation times to the present. In understanding the mining industry in Australia, it is important to note that at no point in the industry's history has it remained consistently stable for a substantial period of time (Battellino, 2010). Thus, the characteristics of mining with boom times and downturns are indicative of the cyclic nature of the industry (Tonts et al., 2016).

The first boom period began in the 1800s, specifically the 1850 gold rush, which saw a large increase in people traveling to Australia for a chance at gaining fortune (Battellino, 2010). During this gold rush period, Australia was producing around 40% of the world's gold (Geoscience Australia, 2004). With the attraction of the gold rush, there was substantial population growth and this increased the demand for goods and services that prompted development in agricultural and service industries (Australian Bureau of Statistics, 2001). Following the gold rush period, the early 1890s saw developments of new mines and the discovery of new minerals that were the drivers of the second notable boom period (Battellino, 2010). By 1900 Australia was mining tin, copper, lead, zinc, gold, silver, coal, and iron ore (Geoscience Australia, 2004). The mining operations continued to be focused in the east of Australia, and it was not until the 1960s with the development of the Pilbara region and other mines in Western Australia that mining began its third major boom period (Battellino, 2010). Discovery of new metals in this period, such as nickel, tungsten, and bauxite as well as oil and natural gas deposits, also aided in the growth of the mining industry (Australian Bureau of Statistics, 2001). This enabled Australia to increase mineral exports internationally, that promoted further economic growth and trade arrangements (Tonts et al., 2016). The fourth

boom period around 1980 was largely driven by the energy sector as well as increased investment in the mining sector, and a sense of euphoria about Australia's future ensued, contributing to increased wage demands and rising inflation (Battellino, 2010). This boom period however was relatively short-lived with the downturn of the global economy in 1981 that led Australia's economy into a severe recession (Battellino, 2010). The increase in demand of Australia's mineral exports for the growing Chinese and Indian economies, saw the most recent boom period commence in 2003 (Deloitte Access Economics, 2017). This reached its peak in 2012-2013, with much investment being made in expansion and exploration to establish new mines (Deloitte Access Economics, 2017).

2.2.1 Current mining context

A mining downturn starting in 2014 saw many previously robust mining roles made redundant, and a slowing of construction and a turn to focus on operations (Tonts et al., 2016). This mining downturn is unsurprising given the historical cycle of mining booms. In 2014 the shifts in the economy and falling commodity prices were thought to have impacted on mining companies' appetite for expansion, with a shift to focus on productive capabilities of mines that had been already established (Jenner, Walker, Close, & Saunders, 2018).

Today, Australia is one of the world's leading resource nations, being the largest producer of many metals, minerals, natural gems, and diamonds (Maxwell, 2017). The mining industry is an integral part of the Australian economy; in 2015-2016 the combined mining, and mining equipment and technology services was estimated to contribute \$236.8 billion (Deloitte Access Economics, 2017), approximately 15% of Australia's total economy. The resources sector was also estimated to provide 10% of the full time equivalent jobs (Deloitte Access Economics, 2017). Mining continues to be central to Australia's economy, and anecdotal evidence suggests the industry is moving into a new boom period after an almost five year downturn (Diss, 2018). To continue to carry out mining operations, large workforces are required at the locations where mineral deposits are identified. These locations are usually remote, and as such attaining a workforce of the needed size has contributed to the use of long distance commuting (Storey, 2001). It is estimated that approximately 60,000 people are employed on a fly-in, fly-out basis in Western Australia alone (Parker et al., 2018).

2.3 Fly-in, Fly-out Work

Long distance commuting is the umbrella term under which fly-in, fly-out; drive-in, drive out; ship-in, ship-out; and bus-in, bus-out styles of commute are centred (Parker et al., 2018). Depending on the location of the work site and distance to a person's permanent

residence, any combination of these long distance commuting types could be feasible. However, the dominant form of long distance commuting in Australia is fly-in, fly-out (FIFO), due to the remote locations of mine sites and preference for people undertaking work in the mining industry to maintain their permanent residence in metropolitan cities (Henry et al., 2013). Therefore, the distance for staff is considered too far for daily commute from their home residence and travel by aeroplane is therefore necessary for them to reach work (House of Representatives Standing Committee on Regional Australia, 2013).

This FIFO style of work in the mining industry is characterised by a person spending a set number of days on a mine site, and flying home for a set number of days for rest and recuperation (Storey, 2001). While on-site, all accommodation and meals as well as a range of recreational facilities are provided for workers by the employing company, most commonly in accommodation villages (Storey, 2001). Facilities are provided for workers because there are significant financial implications for mining companies associated with building permanent (such as mining towns), rather than temporary, accommodation and providing services for their workforce in remote locations which further encourages the use of FIFO (Brueckner et al., 2014; Storey, 2001).

The verification of the number of people who are employed on a FIFO basis is difficult to confirm, as the exact number of employees participating in FIFO is somewhat changeable due to contracting, and records to determine the number of FIFO workers are currently not shared by employers to a central body (Chamber of Minerals and Energy, or the Department of Mines, Industry Regulation and Safety). Ascertaining the particular number of people employed on a FIFO basis was a particular point of interest for the Education and Health Standing Committee's inquiry (Education and Health Standing Committee, 2015). It is estimated by the Chamber of Minerals and Energy that approximately 60,000 people are employed on a FIFO basis in the Australian mining sector (Parker et al., 2018). Drawing information from the government inquiry and the most recent large scale FIFO study ($N=3108$) by Parker et al. (2018), the estimated demographics of this workforce includes a concentrated age range between 25-45 years, with around 85% of the workforce made up of men (Education and Health Standing Committee, 2015; Workplace Gender Equality Agency, 2016). Approximately 75% of the workforce are reported to be partnered, and just over half of the workforce are reported to have dependent children (Parker et al., 2018). The education profile of the FIFO workforce includes comparatively fewer degree qualified individuals than those employed in all other industries, with a majority having completed a TAFE or trade certificate as the highest level of education. About half of the workforce is reported to work in a trade or operator role (Education and Health Standing Committee, 2015; Parker et al., 2018).

2.1 The Crisis of Mental Health in FIFO

FIFO employees in the mining industry work within a context recognised as providing multiple challenges for sustaining wellbeing (Education and Health Standing Committee, 2015; Vojnovic, Michelson, Jackson, & Bahn, 2014). The discussion of mental health within this population has received attention within the academic, government, industry and media spheres, whereby the construction of working FIFO has evolved to be viewed as an 'extreme' lifestyle with many difficulties, and uncertainty about how to make FIFO work, work (Brown, Susomrith, Sitlington, & Scott, 2014; Vojnovic, 2016).

There has been much debate and public concern about characteristics of FIFO work precipitating poor mental health and suicide deaths, with some claiming that FIFO employees' experience of depression, anxiety, and stress shows levels that are notably higher than the general population (Bowers et al., 2018; Considine et al., 2017; Henry et al., 2013; Parker et al., 2018; Vojnovic & Bahn, 2015), while others maintain FIFO does not impact mental health and people who FIFO have levels of depression, anxiety, and stress that are comparable to or lower than that of the general population (Barclay et al., 2013; Joyce, Tomlin, Somerford, & Weeramanthri, 2013; Meredith, Rush, & Robinson, 2014). It is noted however, that there are more studies that report negative impacts of FIFO on mental health, and these studies are also observed to have greater methodological rigor (Parker et al., 2018). In addition, Pini and Mayes (2012) posed a critique of the literature on FIFO experiences, highlighting the dominance of industry sponsored studies that have directed inquiry according to industry interests, which may give insight into the distinct binary in research findings. Originally much of the discussion concerning wellbeing for FIFO workers focused on physical health and safety. However, as research has progressed, more attention is now being paid to the mental health of workers, their families and communities, although this area is still underdeveloped (McTernan, Dollard, Tuckey, & Vandenberg, 2016; Parker et al., 2018). When considering the workers themselves, research is notably limited to examining the extent of mental health and relationship concerns, as well as the aid of formal professional supports, but has largely neglected to recognise or investigate informal social and community based support (Education and Health Standing Committee, 2015; McTernan et al., 2016).

2.2 FIFO as a Lifestyle

Engaging in a FIFO lifestyle dictates the inhabiting of two distinct places: the work site and the residential home community (Misan & Rudnik, 2015). Both of these locations are significant and important to those engaged in FIFO, and the connections and disconnections of these two places can provide challenges as well as supports (Education and Health Standing Committee, 2015; Misan & Rudnik, 2015; Voysey, 2012). FIFO requires routine absences from

residential communities that include individuals' social and community networks, which can make sustaining connections and commitments challenging (Gallegos, 2005; Pini, McDonald, & Mayes, 2012; Taylor & Simmonds, 2009). Further, the environment of the work site has the potential to influence how those living FIFO experience this lifestyle – specifically regarding coping strategies, fatigue, and social engagement (Perring, Pham, Snow, & Buys, 2014).

It is reasoned that working in a FIFO position is not merely a commuting arrangement for a job, it is a lifestyle (Sibbel, 2010). The reasoning of FIFO being conceptualised as a lifestyle is due to the integrated nature of work and life, as each person effectively lives and works on-site and then returns home for a period of time. When participating in FIFO work, the structure of the roster also sets a particular rhythm to life; there are particular expectations while on-site and at home, and this rhythm brings with it unique circumstances and challenges, as well as benefits (Misan & Rudnik, 2015). Due to this transient rhythm, a binary lifestyle is created. For a set period of time there is a distinct focus on working long hours and getting through to the end of the rostered time on-site, followed by a shift in focus when time is spent at home; in this way, attaining balance in the everyday is difficult (Peetz & Murray, 2011). Due to the interconnected facets of FIFO, it is not accurate to only associate FIFO work, with work. FIFO is lived and experienced as an overall lifestyle, as many negotiations and adaptations must be made in order to maintain and meet everyday necessities, like parenting responsibilities, keeping up social relationships, booking appointments, chores and errands, exercise, or leisure activities. The way a person's time is organised and what they are able to do in that time is restricted and prescribed according to their FIFO roster. FIFO by nature is a transient lifestyle, where there is a lesser degree of permanency, and a sense of 'always moving'.

Comparisons and parallels have been drawn between FIFO work and shift work, and FIFO work and military service (Joyce et al., 2013; Kaczmarek & Sibbel, 2008). In the way that shift workers and those serving in the military or navy are recognised to have a particular lifestyle, so too has a person working FIFO. A similarity of these lifestyles is that they are conceptualised as deviating from the typical life structure or routine, where a person is employed in a nearby location and works for a period of time during the day and then returns home at the end of that day. In this structure, a person is able to meet many requirements for connecting with loved ones, participating in life outside of work, completing needed errands and tasks, and importantly, can do so on a daily basis. Those who participate in 'atypical' work, must attempt to adapt and customise their life around their working roster in order to access the necessary resources (Joyce et al., 2013). Instead of having the opportunity to address needs outside of working hours each day, those who engage in FIFO may find they only have the opportunity to address the same needs in the weeks they are not on-site. The rhetoric of responsabilisation poses that individuals are responsible to seek out the resources they need

(Trnka & Trundle, 2014), and will have daily time to access resources and participate in activities in their local communities, however, this is not necessarily the case for atypical work lifestyles such as FIFO (Vojnovic et al., 2014).

The schedule of atypical work lifestyles does not necessarily integrate neatly with the way in which the dominant routine of work is organised in Australia, which suggests that the expectations of people who FIFO to maintain connections in their communities is problematic. The limitations for people to participate in community is also concerning given the lifestyle of FIFO dictates regularly moving from one place of residence to another, and residential transience has been found to be associated with adverse mental health outcomes (Davey-Rothwell, German, & Latkin, 2008).

2.3 Benefits and Challenges

People who FIFO do experience a range of benefits associated with their FIFO employment. The most prominent benefit is the high pay rate which can not only enable workers' particular investment opportunities, for example entering the property market, but may also enable those working FIFO to comfortably provide for their families (Palmer, 2014). Relocation of families to regional mining communities is not always an attractive option, and FIFO work schedules offer the opportunity for families to remain in metropolitan areas (Storey, 2001). Other benefits of FIFO employment are the reported experience of personal growth with independence and freedom, being able to spend quality time with family on rostered breaks, satisfaction with occupational role, and working out in the rural environment (Carrington, Hogg, & McIntosh, 2011; Gallegos, 2005).

'Free choice' is a prevalent theme in dialogues that advocate for the FIFO model, as critics of using the FIFO model are often reminded that participating in FIFO is voluntary (Chamber of Minerals and Energy, 2012). This theme is exaggerated by promoting the message that individuals will join FIFO for the benefits, and if individuals' experiences of FIFO are harmful or too challenging, then they can simply leave the job and find another (Palmer, 2014). However, financial commitments and goals, increased spending habits, dependency on a FIFO salary, and lack of alternative opportunities locally, reveal that the idea of freely choosing to leave the industry may be more difficult in reality (Palmer, 2014). Assuming those participating in FIFO are satisfied with their position and do not face detrimental impacts in other areas of their life based solely on their continuation of FIFO, is therefore somewhat problematic.

FIFO significantly influences overall wellbeing (Henry et al., 2013). The relationship between mental health and FIFO work has been under particular scrutiny since a number of suicide deaths in Australia proposed to be directly linked to working FIFO were reported, spurring a government inquiry into the issue (Education and Health Standing Committee,

2015). McPhedran and De Leo (2013) suggest that there is "...tentative support to the theory that employment in the mining industry may be associated with specific factors that are in turn associated with elevated suicide risk." (p.5). FIFO interferes with family life and parenting (Taylor & Simmonds, 2009), and strain on relationships with partners and friends is commonly experienced, potentially leaving FIFO workers feeling disconnected from a sense of home and community (Barclay et al., 2013; Pini et al., 2012). Similarly, feelings of isolation and loneliness, and experiences of depression and anxiety, have also been reported (Gent, 2004; Torkington, Larkins, & Sen Gupta, 2011; Vojnovic & Bahn, 2015). High levels of stress are also characteristic of this lifestyle, which seemingly manifest from factors such as job demands and the constant transitioning between site and home locations (Henry et al., 2013; McPhedran & De Leo, 2013; Vojnovic et al., 2014). High levels of alcohol consumption (and to a lesser extent substance use) are also of concern in relation to the FIFO lifestyle, with alcohol thought to be used to cope with stress (Carrington, McIntosh, & Scott, 2010; Tynan et al., 2017), but has also been reported to contribute to increased levels of violence (Ennis & Finlayson, 2015; Gilmore, Liang, & Chikritzhs, 2015). Those working a FIFO schedule are also at risk of physical exhaustion and fatigue due to long working hours and exposure to harsh environmental conditions (Education and Health Standing Committee, 2015). This is further exacerbated by the experience of disturbed sleep, a common occurrence for people living FIFO, particularly when changing from day to night shifts (Muller, Carter, & Williamson, 2008; Peetz & Murray, 2011).

2.3.1 Mental health concerns

Prevalent throughout research exploring the experiences of people who FIFO is the notably higher level of poor mental health and psychological distress reported (Education and Health Standing Committee, 2015; Henry et al., 2013). Bowers et al. (2018) reported 28% of their sample of people who FIFO were found to have high or very high psychological distress, which is notably higher than 10.8% for the general Australian population. This study described the stressors most frequently reported by people who FIFO that contributed to psychological distress included missing special events, experiencing relationship problems, financial stress, their roster, and social isolation. Parker et al. (2018) compared a sample of people who FIFO with a benchmark group, finding that people who FIFO had significantly higher levels of depression, anxiety, and burnout, and were almost twice as likely to experience high or very high psychological distress in comparison to the benchmark group. In addition, this study found people who FIFO experienced poorer social wellbeing than the benchmark group. Considine et al. (2017) also reported findings of a large sample of people who FIFO, showing significantly higher levels of psychological distress in comparison to a national data set (after controlling for gender and age). This study also described the influence of work characteristics

on psychological distress levels, with overall dissatisfaction with work, job insecurity, and perception of mental health stigma in the work culture significantly associated with levels of psychological distress.

Contextually, there are a number of factors that increase the risk of experiencing depression, anxiety, and stress for people who undertake a FIFO roster and lifestyle, which highlights the need for addressing these issues (Vojnovic & Bahn, 2015). The Parliamentary reports conducted in Western Australia and Queensland suggest the demographics of people who partake in FIFO increase the likelihood of developing mental health issues, as mental health issues have been recorded to have a higher prevalence in men with lower levels of education (Education and Health Standing Committee, 2015; Infrastructure Planning and Natural Resources Committee, 2015). The nature of FIFO work, with minimum 12 hour shifts in characteristically harsh and isolated environments, and many roles that are considered high risk and with high demands, increases the likelihood of experiencing stress, which can precipitate anxiety and depression (Clifford, 2009). Further, people who FIFO have been found to have difficulties in connecting with social networks, and are less likely to seek help when experiencing health related issues (Tynan et al., 2016). The incidence of relationship difficulties and strain, as well as becoming 'trapped' in continuing to work FIFO due to financial commitments are considered to be factors that increase the likelihood of experiencing mental health problems, as well as social isolation and loneliness (Education and Health Standing Committee, 2015; Vojnovic, 2016; Vojnovic & Bahn, 2015).

2.3.2 Loneliness

Loneliness is seen to occur when belonging and connection needs are not met (Holt-Lunstad, Smith, Baker, Harris, & Stephenson, 2015). Franklin et al. (2018) describe the experience of loneliness as affecting a very large proportion of the Australian population, and men in particular. Loneliness is a significant contributor to risk of suicide in Australian men, and this is especially concerning considering the suicide rate for men is three times greater than that of women (Franklin et al., 2018), with men in the 25-44 age bracket seen to be most at risk. This at risk demographic group aligns with the estimated demographics of the FIFO workforce (Parker et al., 2018; Workplace Gender Equality Agency, 2016). Men and women are purported to experience loneliness in different ways. A key part of this gendered experience of loneliness is the willingness and openness to communication, where Australian men are observed to be notably avoidant of talking about their loneliness within personal relationships or to formal support providers such as psychologists (Franklin et al., 2018; Tynan et al., 2016). This creates a problematic situation whereby men are more likely to be lonely, are less likely to

be able to do the very things that may be helpful in ameliorating their loneliness, and are at a greater risk of suicide (Franklin et al., 2018).

The already high levels of loneliness experienced by Australian people is particularly concerning given the nature of FIFO being associated with social isolation (Torkington et al., 2011). Loneliness has highly corrosive impacts on a range of outcomes including mental and physical health, how communities function, workplaces and workplace culture, as well as individual happiness and satisfaction (Franklin et al., 2018). Placing men who are already vulnerable to experiencing loneliness and social isolation into a context which exacerbates exactly those factors is concerning and problematic. This illustrates the distinct urgency regarding the need for changes to be made in order to bolster protective factors and preventative strategies to support people who FIFO.

Workers who FIFO also tend to be perceived negatively by the general community, including both the 'host' communities (the towns neighbouring mine sites), as well as the 'home' communities (Carrington & Pereira, 2011; Pini, McDonald, & Mayes, 2012). This suggests broader interpersonal and contextual factors also contribute to the experience of a FIFO lifestyle, on and beyond the work site. Anecdotal evidence also captures the negative perception of people who FIFO, as a researcher in the area reported backlash and criticism to study findings that described the mental health hardships of FIFO (Stünzner, 2018).

An additional complexity when considering experiences of loneliness for people who FIFO is the unique experience of women (Mayes & Pini, 2010; Pirotta, 2009). At present, it is estimated that women make up 22% of the resource sector workforce in total, however, women are significantly underrepresented in on-site positions as well as executive management roles (Minerals Council of Australia, 2007, 2013). The composition of the mining workforce has been estimated at 13.7% women and 86.3% men (Workplace Gender Equality Agency, 2016). Women who FIFO have been found to feel lonely and isolated in part due to this lack of diversity, with experiences of harassment further restricting women's opportunities to feel safe and part of the team (Laplonge, 2016).

2.3.3 Hyper-masculine work culture

Qualitative studies have made a meaningful contribution to furthering the understanding of women's experiences and the issues they face (e.g. Pirotta, 2009), and it has been consistently found that women have comparatively different and additional difficulties when participating in FIFO employment (Commonwealth of Australia, 2013; Henry et al., 2013; Pirotta, 2009). Factors that are noted to influence this different experience have been identified as a distinct masculine culture on mine sites, gender stereotypes including implications regarding the fulfilment of caregiving roles, and discrimination (Pirotta, 2009).

However, understanding regarding the specific experience of women FIFO workers is still limited, and as such further investigation is required to gain adequate insight to these experiences (Costa, Silva, & Hui, 2006; Mayes & Pini, 2010).

The work culture on Australian mine sites has been recognised to be hyper-masculine (Carrington et al., 2010; Lahiri-Dutt, 2012). Dominant expressions of masculinity are associated with strength and power, and behaviours that establish these attributes (Connell & Messerschmidt, 2005). Hyper versions of masculinity are expressed through socially regressive behaviours and traits associated with men, that are focused on domination, devaluation of women, homophobia, and conveying strength through violence (Kupers, 2005). Social context and negotiation of power relationships contribute to an amplification of masculinity, which can be influenced by having a large number of men located within an isolated setting, such as a mine site (Carrington et al., 2010).

In the Australian mining industry men make up the majority of the workforce, with an estimate of 86% of employees being men (Workplace Gender Equality Agency, 2016). The sheer number of men involved in mining activities has meant an unbalanced gender ratio on mine sites, both in operations, construction, and office centred roles (Mayes, 2014). This masculinisation of the workplace, coupled with the hard labour and harsh conditions of the mining environment, has contributed to a valuing of strength, avoidance of emotion, and the construction of toughness and invincibility that endangers wellbeing and physical safety (Laplonge, 2016). Interestingly, Parker et al. (2018) noted that concerns with adhering to masculine norms were only reported by men. This suggests that the hyper-masculine work culture on mine sites is experienced and navigated by men and women differently.

Men who work in high risk occupations such as mining are more likely to be exposed to physical risks, violence, and psychological hazards, and distinct normative expectations relating to masculinity (Stergiou-Kita et al., 2015). As certain dynamics are intensified in mining contexts, the demand for men to be physically and emotionally tough and fearless in the face of danger or risk is amplified (Jensen et al., 2014; Kupers, 2005). Masculine power is also exhibited through resisting authority, which includes occupational health and safety representatives (Jensen et al., 2014). Parker et al. (2018) found that higher perceived masculinity scores were associated with higher levels of alcohol use, meaning that potentially men who are concerned with appearing more masculine are more likely to drink more.

The consumption of alcohol has been noted to be characteristic of the FIFO lifestyle (Carrington et al., 2010). Reports from people who FIFO have indicated that a significant number feel guilty about the amount of alcohol they consume, and feel they need to reduce their intake (Barclay, Harris, Everingham, Kirsch, & Shi, 2016). Research in the area has also indicated that increases of violence and assault have occurred within and surrounding FIFO

mining camps due to alcohol use and drunkenness (Gilmore et al., 2015). Consistent throughout research on people who FIFO, alcohol is suggested to be a prominent part of the FIFO culture and experience (Carrington et al., 2011; Education and Health Standing Committee, 2015; Pini et al., 2012).

Among men, hyper-masculinity has been found to limit the receptiveness to emotions and willingness to attend to emotional psychological hardship, such as depression (Seidler et al., 2016). Stigmatisation of mental health is perpetuated by hyper-masculinity through framing struggles with mental health as weakness (Kupers, 2005; Laplonge & Albury, 2013). This suggests that the hyper-masculine culture on mine sites could be a contributing factor to the observed reluctance for men in Australian mining to seek help (Tynan et al., 2016).

The impacts of the hyper-masculine work culture for women who FIFO in Australia include harassment, discrimination, attitudes from others of women being 'out of place' on mine sites, and limits on opportunities (Lozeva & Marinova, 2010; Mayes, 2014). Gilmore et al. (2015) found that regions where large scale mining operations take place are associated with increased levels of assaults on women. Pirotta (2009) reported that women who FIFO described feeling uncomfortable in the leisure areas on mine sites as they felt unsafe, and often had difficulty having their personal boundaries respected by their male co-workers. The mining industry has invested effort into attracting more women into the industry (Chamber of Minerals and Energy of Western Australia, 2008; Minerals Council of Australia, 2007, 2013), however the proportion of women employees in mining remains low. The impacts women have been reported to experience working FIFO in the mining industry is likely a disincentive for women to participate.

2.4 Support Resources

There is evidence that employers of FIFO workers have an interest in supporting their staff, illustrated by reports of the range of formal support mechanisms provided as well as increased awareness of the need and responsibility to provide such support (Education and Health Standing Committee, 2015). These include services such as employee assistance programs, on-site counselling services, as well as medics and nurses (Henry et al., 2013). However, there is a degree of scepticism regarding the use of these services and reports describe a distinct reluctance from workers to seek support for work or personal issues (Education and Health Standing Committee, 2015; Torkington et al., 2011; Vojnovic et al., 2014). Workers have also reported uncertainty in the role of nurses or medics in providing support for mental health related issues (Henry et al., 2013). In an exploratory study, Voysey (2012) reported over 50% of 245 FIFO workers involved had little to no knowledge of the support options that were available to them on-site, and in conjunction with this, the

participants also exhibited limited knowledge of support options available off site, such as GPs or other community based supports. These findings suggest that although formal support mechanisms may be provided by mining companies, the lack of awareness and scepticism surrounding their use limit their usefulness. The stigma associated with mental illness, which is exacerbated by the hyper-masculine 'macho' and 'toughen up' culture on mine sites, further limits the likelihood of these formal support services being accessed (Laplonge & Albury, 2013; Vojnovic et al., 2014).

The provision of formal services is needed, however it is insufficient to be the only support resource available (Parker et al., 2018). The structure of FIFO work dictates a separation and distance from social and community networks at home and limits opportunity to develop these on-site (Torkington et al., 2011), and these networks are paramount for general wellbeing (Handley et al., 2012). The cultural neoliberal messaging that prompts individuals to be solely 'responsible' for their wellbeing allows the characteristics of working FIFO to be overlooked as a major contributor to ill mental health, as it is portrayed as the individual's responsibility to 'seek help' when needed (Trnka & Trundle, 2014; Tynan et al., 2016). This individual responsibility to 'seek help' downplays the importance of protective and preventative support systems, such as sense of community and social support, which in order to foster require investment and social participation (Cicogani et al., 2008; Kawachi & Berkman, 2001). This responsabilisation is harmful to people who live FIFO, as the responsibility to maintain their social networks is placed on individuals and the responsibility of mining employers to provide opportunities to socially connect are downplayed.

Empirical research regarding protective support systems for FIFO workers is significantly underdeveloped, despite repeated findings that FIFO workers prefer to seek help from trusted partners, friends, family members, or co-workers (Coghill & Blackmore, 2014; McLean, 2012; McTernan et al., 2016; Pirodda, 2009; Torkington et al., 2011). However, the importance of sense of community and social support has been gaining attention with more focus on families, partners, and communities being called for in both media and literature (Barclay et al., 2013; Coghill & Blackmore, 2014; Meredith et al., 2014). There is limited research that investigates these sources of support and the propensity of sense of community and social support to optimise wellbeing for people living FIFO.

2.4.1 Community and sense of community

Communities have been the foundation of organised social life throughout the world and history (Kloos et al., 2012). Communities can be defined geographically, or relationally, but always consist of a group of people that are connected in some way. This could be through a

shared geographical space such as street or suburb, interest or hobby, work, education, friendship group, or an online community.

An underexplored informal support for people who FIFO is the role of sense of community. This phenomenon was described by Sarason (1974) as being the core component and internal experience of a community. According to Sarason (1974), psychological sense of community is the:

...perception of similarity with others, an acknowledged interdependence with others, a willingness to maintain this interdependence by giving to or doing for others what we expect from them, the feeling of being part of a larger dependable and stable structure (p. 157).

McMillan and Chavis (1986) operationalised Sarason's pioneering work and proposed a theory of four criteria consisting of membership, reciprocal influence, integration and fulfilment of needs, and shared emotional connection that were the underlying components contributing to sense of community.

Membership is in essence a feeling of belonging (McMillan & Chavis, 1986). Membership requires investment, whereby a member of a community has invested part of themselves and therefore has a tie to the community. This investment in the community also makes membership more meaningful and valuable to the individual. Membership in the community is more likely if there are shared interests and values. Boundaries are also important to community membership, as boundaries determine who is a part of the community, and who is not. This is important to consider in regard to mining accommodation situated near rural towns, and the impact of a person's community membership at home when they are not present within the geographical boundaries of that community for prolonged and regular periods of time. Community membership affords emotional safety, a sense of being able to be open and vulnerable with others, which is beneficial for wellbeing (McMillan & Chavis, 1986).

Reciprocal influence is a sense of mattering, and ability to make a difference in the community, both being a part of the whole and retaining autonomy and individual identity (McMillan & Chavis, 1986). In this way, the influence is bidirectional, with the community influencing the member and the member influencing the community. Generally, people are attracted to communities where they are able to feel influential and a sense of contribution.

Integration and fulfilment of needs is a primary motivation for becoming a member of a community. These include social, emotional, and safety needs (McMillan & Chavis, 1986). The shared values of a community can dictate what it is the community needs, and members can integrate their personal needs with the needs of other members. The status of the

community, how successful the community and community members are, as well as the skills and competencies the community have to offer are some reasons why people are attracted to being a part of a community.

Shared emotional connection is considered to be the heart of community, whereby a kind of spiritual bond between community members is developed. This part of sense of community is the most difficult to describe, but is the most important aspect that makes sense of community. This bond is encouraged through members having positive interactions, sharing experiences, common places, time together, important events to share in and resolve together, opportunities to honour members, invest in the community and work towards the greater good (McMillan & Chavis, 1986).

There are many benefits to having a sense of community, and it has been associated with many positive outcomes. Sense of community promotes quality of life and general wellbeing (Pretty, Bishop, Adrian, & Sonn, 2007), as well as buffering stress, contributing to individual and collective empowerment, and acting as a protective factor in times of difficulty (Christens & Lin, 2014; Cicogani, Pietrantonio, Palestini, & Prati, 2009; Kutek et al., 2011). Sense of community is a powerful force for creating cooperation and reliable interdependence within settings and groups (Burroughs & Eby, 1998). Sense of community is most often conceptualised in terms of neighbourhoods or friendship groups, however workplaces are also contexts that can be a source of meaning, identity, and support (Burroughs & Eby, 1998). There is an integral relationship between workplace, individual identity, and psychological wellbeing (Burroughs & Eby, 1998), and as such the workplace is of particular relevance for FIFO workers, as they spend large and inordinate blocks of time within their work setting (Storey, 2001).

Paramount to the FIFO experience of sense of community is the distinction between relational and geographic communities. Communities can exist both within a locality, and as a group of people (Bess, Fisher, Sonn, & Bishop, 2002). As communities are complex, the foundations of a community are flexible, but the key component that generates benefits from a community is sense of community. It is plausible that relational sense of community emerges through the nature of FIFO workplaces, which are geographically defined. Previous literature has reported FIFO workers experience camaraderie and positive experiences associated with 'being part of the team' whilst on-site (Considine et al., 2017; Misan & Rudnik, 2015). These initial indicators in FIFO settings of social support systems warrants further exploration, to explore the experience of sense of community and social support for FIFO workers, and the potential for these resources to provide support for workers.

Sibbel, Kaczmarek, and Drake (2016) identified the need for investigation into how people who FIFO perceive and relate to the communities they live in while on-site, as this

remains underexplored. The preliminary research conducted by Sibbel et al. (2016) included a psychological sense of community measure, with results indicating more than 50% of their sample reported agreement or strong agreement with items describing psychological sense of community on-site. These findings also indicated that women had higher levels of psychological sense of community than men, and workers who spent two weeks on-site at a time had, on average, the highest psychological sense of community score compared to those who spent less than two weeks or more than two weeks. Perring et al. (2014) investigated mining camp infrastructure, suggesting from their findings that well maintained on-site facilities have the propensity to promote socialising, emotional and physical wellbeing, and contribute to developing a sense of community, although sense of community was not specifically measured to support this.

For people working FIFO, the experience of community in their home communities is yet to be investigated, although Hoath and Pavez (2013) suggest in their report that people working FIFO do want to contribute to and be involved in their home communities. People who FIFO have reported, in some instances, the quality time the FIFO lifestyle permits workers to spend with family, and in their home community, is a notable perk of the lifestyle, with activities such as volunteering and sports being of particular interest (Haslam McKenzie, 2016). The availability of options for people who FIFO to engage in sports and community activities is however limited, due to their rosters not allowing them to participate in weekly or fortnightly schedules which are often required (Education and Health Standing Committee, 2015).

2.4.2 Social support

Sense of community is intrinsically connected to increased levels of perceived social support, through providing a supportive structure (Kuttek et al., 2011; Newbrough, 1973). Close and caring relationships are vital to overall wellbeing (Feeney & Collins, 2015). Social support has been identified to buffer stress (Cohen & Wills, 1985), as individuals draw on social groups to enhance and maintain health and wellbeing, enabling individuals to better deal with problems and stressors both in daily life, as well as in times of crisis (Cicogani et al., 2009; Jetten, Haslam, Haslam, Dingle, & Jones, 2014). Social support has been shown to be instrumental as a protective factor, lessening the likelihood of negative psychosocial outcomes, with evidence that having social support networks decreases suicidal ideation in people living in rural areas (Handley et al., 2012). Handley et al. (2012) reported perceived availability of interpersonal support was found to be a protective factor against the development of thoughts of suicide, persisting even when the largest risk factors such as psychological distress and alcohol use were accounted for.

Social support is important for sustaining personal wellbeing (Ebert et al., 2019). Research in the area of FIFO has confirmed this remains the case for this population. People who FIFO have reported a preference for engaging with social and community networks such as trusted friends or colleagues as a means for support rather than engaging with formal support services. Studies report findings that contact with friends and family was the most common source of support that people who FIFO sought out to assist with stress or emotional hardships (Considine et al., 2017; Torkington et al., 2011; Tynan et al., 2016). This has been further discussed in regards to the observed preference for self-management strategies, as opposed to engaging with professional services, when experiencing personal or relationship issues, consistent with wider research on support preferences (Ebert et al., 2019; Tynan et al., 2016). The relationships formed on-site with co-workers have been described as valuable and necessary to cope with the FIFO lifestyle (Misan & Rudnik, 2015; Parker et al., 2018). However, reduced participation in social networks, relationship strain, and unreliable communication facilities on-site were also described as barriers to being able to access social support from family, friends, as well as co-workers, and is also reported to contribute to people who FIFO experiencing sense of loneliness and isolation (Bowers et al., 2018; Mactaggart, McDermott, Tynan, & Gericke, 2016).

2.4.3 Life satisfaction

Life satisfaction is a core dimension of subjective wellbeing, and indicates happiness (Arrindell, Heesink, & Feij, 1999). This is considered to be a cognitive evaluation of overall satisfaction with life circumstances, which involves a person weighing up what is important to them as an individual and how content they are with their circumstances (Erdogan, Bauer, Truxillo, & Mansfield, 2012). Measuring a core aspect of wellbeing in this way allows a person to consider all aspects of their life, and to average the desirable and undesirable (Diener, Emmons, Larsen, & Griffin, 1985). Life satisfaction has been found to be associated with many positive outcomes. For instance, those who report being satisfied with their life have reduced mortality rates and less cardiovascular concerns, are less likely to have sleep complaints or experience burnout, and are more likely to feel motivated and be productive (Brand et al., 2010; Erdogan et al., 2012; Pavot & Diener, 2008). People who report higher levels of life satisfaction have stronger social relationships, better overall physical health, and reduced risk of suicide (Diener & Seligman, 2002). There have also been strong associations between satisfaction with life, lower turnover intentions, and higher job satisfaction (Erdogan et al., 2012; Iverson & Maguire, 2000).

The focus of research on the experience of people who FIFO is primarily concerned with negative outcomes associated with the lifestyle (Blackman et al., 2014). There has been

limited investigation into factors that attract people to living FIFO, which restricts the level of understanding of this experience. As people who work FIFO spend a great deal of their time on-site occupied in work tasks, it is reasonable to suggest overall life satisfaction would be connected to their experience of a FIFO lifestyle (Iverson & Maguire, 2000).

2.5 Handover

In this chapter relevant contextual and background information for the project has been described. The focus of this project is on the individuals themselves who participate in FIFO work in the Australian mining industry. This is due to concerning reports of increasing suicides and poor mental health, as well as isolation and damages to wellbeing (Bowers et al., 2018; Education and Health Standing Committee, 2015). It is critically urgent to examine the way in which FIFO work is designed and implemented, as well as ways in which to prevent psychosocial risk factors and protect the wellbeing people who engage in this lifestyle (Parker et al., 2018).

Although the mining industry continues to cycle through booms and downturns, this industry and the need for large workforces in rural settings will continue (Tonts et al., 2016). It is therefore important that consistent practices and conditions of this lifestyle are implemented in order to support the health and wellbeing of all people who FIFO. The focus on the negative impacts of FIFO and prevalence of poor mental health in the majority of previous research does little to inform direction and best practice for managing this lifestyle for employees and employers alike. The current project is therefore focused on a strengths based approach, including how to enhance social and community connections as well as supportive work conditions in order to optimise wellbeing for people living a FIFO lifestyle. In the next chapter, I will describe the aims and objectives for the project.

Chapter 3 Aims and Objectives

3.1 Pre-start

In this chapter I will describe the specific aims and objectives of this project. Broadly, the intent of the project is to explore the experiences of people who FIFO, and what is needed to enhance social and community networks, and support mental health and wellbeing. With these findings, I intend to develop recommendations for strategies to optimise wellbeing for people who FIFO.

3.2 Aims and Objectives

The aim of this study is orientated towards examining protective factors, in order to build preventative strategies, rather than measuring the magnitude of hardship and poor mental health within the FIFO workforce, as this has already been established (Education and Health Standing Committee, 2015). By approaching this study using Community Psychology, I aim to firstly explore the overall picture of FIFO, then build on these findings to specifically examine key challenges and strategies that are directly informed by people who FIFO.

By determining the usefulness of social support, sense of community, and work factors to support the mental health outcomes for people who FIFO, I aim to explore social and community connectedness in order to attend to the state of mental health crisis recognised in this industry. Through the focus on support, I aim to anchor this research with a positive and strengths-based focus. In addition, I aim to contextualise the situation by taking the focus away from just the individual and instead focus on including community and systemic contributors. To achieve the overall aim of understanding how to optimise wellbeing for people who FIFO, a sequenced research design was used with each stage dependent on the findings from the previous stage (for more on this Methodology, refer to Chapter 4).

The objectives of this research are governed by the overall research question, *'What is needed to optimise the wellbeing of people who FIFO in the Australian mining industry?'* The parameters of the research question support the overall aim of this project in orientating the research with a positive and Community Psychology approach, and positions the outcomes of this research to be geared towards strengthening protective factors for wellbeing. Specifically, the aims of research were to:

1. Test the relationship between role and on-site lifestyle factors, social and community support, and mental health outcomes for people who FIFO,
2. Explore experiences of the FIFO lifestyle including challenges and benefits, and

3. Develop strategies that can support wellbeing for people who FIFO.

These aims inform four objectives that were addressed through the research phases. The figure below (Figure 2) presents the project objectives, and this figure will be used throughout this thesis to act as a guide for the progress of the research reporting. Objectives 1 and 2 were addressed in Phase One with the use of online surveys. Objective 3 was addressed through Phase Two with the use of qualitative interviews. Finally, objective 4 was addressed through mixed method integration of the survey and interview findings to inform a set of recommendations. Each of these objectives will be described individually, with associated hypotheses and research questions.

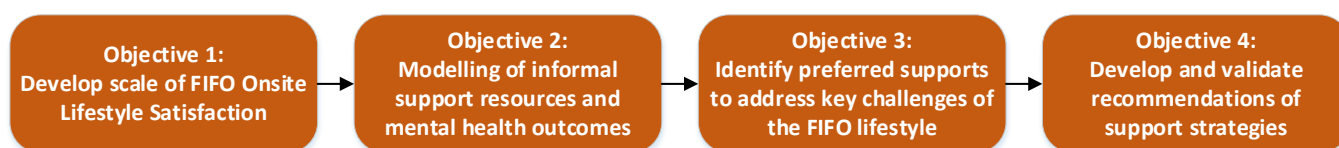


Figure 2. Flow Diagram of Project Objectives

3.3 Objective 1

In Objective 1 I aimed to develop and validate a scale of on-site lifestyle satisfaction for people who FIFO (refer to Chapter 6). This builds on the recognition in the literature of the experience of on-site life being influential on the overall experience of FIFO work (Perring et al., 2014). Since people who FIFO often spend more than 50% of their time on-site, their experience of on-site life is arguably influential on their overall wellbeing. The items of the scale were informed by key literature in the area.

3.4 Objective 2

Objective 2 sought to model the survey data to answer the research question *Does sense of community in relation to home and mine site contexts, perceived social support, FIFO on-site lifestyle satisfaction, and alcohol use predict mental health outcomes (depression, anxiety, and stress, and satisfaction with life) for people who FIFO?* A hypothesised model was drawn up to model the community, social, on-site lifestyle satisfaction, and alcohol use predictors for mental health outcomes for people who FIFO (refer to Chapter 7).

3.5 Objective 3

Objective 3 was to identify preferred support resources for addressing key challenges of the FIFO lifestyle. Qualitative semi-structured interviews were used to provide further explanation of the findings from the quantitative phase (Objectives One and Two). The

interview guide development was informed by the findings from the previous objectives, and aimed to build on these insights by asking participants how they managed their FIFO lifestyle, and what additional supports were needed in order to sustain their wellbeing. The analysis was governed by the research question, *'How can people living a FIFO lifestyle be supported effectively?'*

3.6 Objective 4

Objective 4 was focused on integrating the findings from the quantitative and qualitative phases of the research, in order to inform the development of recommendations. In the spirit of the overall aim of the research, these recommendations were posed at two levels of change (first order and second order change; Scott & Wolfe, 2014) in order to move the focus away from the individual and include community and systemic factors.

3.7 Handover

In this chapter I described the overall aim of the project, and outlined the specific aims and objectives. In the next chapter I will discuss the project methodology including my epistemological position, theoretical perspective, use of mixed methods and the research design employed.

Chapter 4 Methodology

Research is formalised curiosity.

It is poking and prying with purpose.

- Zora Neale Hurston (1942)

4.1 Pre-start

In this chapter I will describe my context as a researcher and approach to conducting this project. It is important in research that there is alignment between the elements, so that the researcher epistemology, theoretical perspective, as well as the project design and selected methods make sense together. The common thread for my position is fundamentally a value of seeing the bigger picture, acknowledging context, and as such including multiple sources and types of data to understand the phenomenon under investigation. As I recognise the need for change to better support people who FIFO, my position includes a focus on enabling practical research translation, which is aligned with my epistemology, theoretical perspective, and project design.

4.2 Epistemology

My epistemological position aligns with a contextualist paradigm (Kingry-Westergaard & Kelly, 1990). This position posits that individuals, time, and context are inseparable (Bishop, Dzidic, & Breen, 2013). In this way, phenomena are seen as the confluence of environmental and temporal entities, psychological processes, and people. Each of these elements are interdependent, and are in fact aspects of a whole that coexist and jointly define one another with reciprocal influence. As the issue under investigation here is suitably complex, it requires a perspective that recognises multiple contributors, and responds by accounting these in the process of understanding what could be done (Kelly, 1990).

Given this, a Community Psychology theoretical perspective and mixed methods approach will be adopted in order to explore experiences of people living FIFO, enabling investigation of the issues from multiple levels and thus allowing a more in-depth understanding of the complexity and interconnected nature of phenomena (Creswell & Plano Clark, 2011; Faust, Haber, Christens, & Legle, 2017; Polkinghorne, 2005).

4.3 Theoretical Perspective

Community Psychology informed my theoretical perspective for this project. This area of psychology includes a particular way of understanding issues, taking into consideration wider contextual factors and the relationships therein, thus moving the focus away from the individual and considering cultural and systemic factors (Scott & Wolfe, 2014). Community Psychology includes clear links between research and action, and aims to position research to be applied in the real world (Faust et al., 2017). Community Psychology includes a strong theoretical base, including sense of community models (McMillan & Chavis, 1986), and theories of change (Faust et al., 2017).

Contextualism is significant to Community Psychology, as developing theory, research, and interventions that locate individuals within their sociocultural context is a central premise of this field (Trickett, 1996). Recognising the importance of context is one of the key insights provided by Community Psychology, in comparison to other areas of psychology which instead focus on the individual (Hess, 2005). To illustrate this, central within Community Psychology is the ecological systems theory (Bronfenbrenner, 1979). This theory provides a framework for examining individuals nested within their sociocultural context, and is a valuable tool to understand the contextual nature of issues by examining communities, places, resources, governance systems, culture, and history (Trickett, 2008).

Most existing research in the area of FIFO is not theoretically based. In contrast, this project makes strong links to theory, and utilises the strengths of Community Psychology to examine this issue in an alternative way, gearing the findings towards informing action. The values of Community Psychology orientate the research direction to be strengths-based and geared towards community connection, empowerment, and equality (Kloos et al., 2012). Further, Community Psychology encourages recognising participants as active and competent collaborators in the discovery (Kelly, 1990). As such, participants' ideas about the strategies and solutions that are or could be employed to transform the problems they face were actively sought and given the central focus in this study.

4.4 Mixed Methods Research

I utilised a mixed methods approach to the design and process of this research. Mixed methods as a field is relatively new, however development of literature and process guidance in this area has been substantial (e.g. Creswell & Plano Clark, 2017). In essence, mixed methods is an approach to research where both quantitative and qualitative data are collected, are combined through a process of integration, and interpretations are drawn based on the integrated findings to understand research problems (Creswell, 2015). These integrated

findings are understood to be of greater value and insight than the isolated quantitative or qualitative data individually. Levitt et al. (2018) include reporting standards and outline strategies for methodological integrity, which include those of both qualitative and quantitative approaches with an added focus on the integration of findings, as this is what makes mixed methods truly ‘mixed’. Integration is of central importance to the quality and methodological integrity of mixed methods research (Fetters, Curry, & Creswell, 2013), and as such was a central focus during this project (as discussed in Chapter 11).

4.5 Research Design

For this project I utilised an explanatory sequential mixed methods design (Creswell & Plano Clark, 2017). This design places quantitative data collection and analysis first, followed by qualitative inquiry to provide deeper explanation of the quantitative results. I designed this project with particular sequencing that included a flow of intent, which optimises the strengths of the explanatory sequential design. The quantitative Phase One focused on identifying issues and relationships, and the qualitative Phase Two focused on finding out more specific information and responses to these identified issues. Through this sequencing, I built on what was identified, to what could possibly be done about it, grounding these interpretations in participants’ experiences and ideas. Phase Three focused on the integration of the quantitative and qualitative data using a sequenced joint display, as recommended by Creswell and Plano Clark (2017). Through the use of a joint display, quantitative findings are presented first, with relevant qualitative findings presented in connection to these. To incorporate the theoretical perspective of this project, I posed the integrated findings in the context of Community Psychology change principles to recommend applied support strategies (refer Figure 3.) The specific methods for each of these phases of the project will be discussed in subsequent chapters, presented before the reporting of the results of the relevant phase.

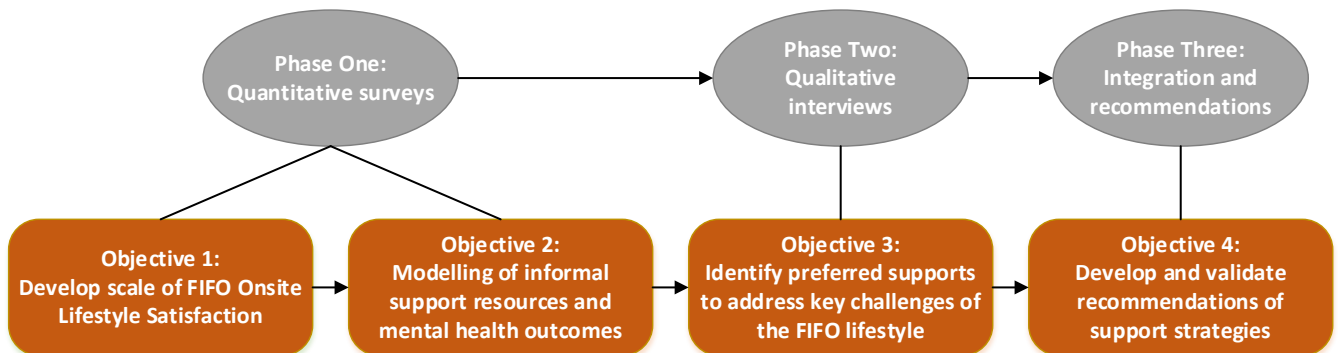


Figure 3. Flow Diagram of Project Phases and Objectives

In conducting these phases, the use of a mixed method design was optimised, as I collect and analyse data, integrate findings, and draw inferences utilising both quantitative and qualitative methods (Tashakkori & Creswell, 2007). This allowed for complementarity where overlapping and differing aspects were identified, as well as expansion (Creswell, 2003). The use of a mixed method design is justified in exploring complex social phenomena, as one data source may be insufficient; qualitative findings can be used to further explain quantitative results (Creswell & Plano Clark, 2011). It is recognised on the basis of methodological pragmatism that a variety of approaches is needed to understand complex phenomena and to be responsive to people's contexts, with qualitative and quantitative methodologies not necessarily exclusively bound to a single world view (Creswell, Plano Clark, Gutmann, & Hanson, 2003; Denscombe, 2008). Therefore, the complex nature of the phenomena under investigation lends itself to a mixed method design.

4.6 Researcher Positioning

I acknowledge that my perspective on wellbeing informed how I approached and designed this project. I understand wellbeing to be more than the absence of negative psychological factors such as depression, necessitating the presence of positive psychological factors such as satisfaction with life (World Health Organisation, 2014). Living in Western Australia and being immersed in a context with a substantial mining industry, there are conflicts that I negotiated throughout this project. My value of the environment, human wellbeing, approach to and understanding of change, and passion for community and social connection were at times at odds with one another. Advocating for better support of FIFO can mean supporting ongoing mining operations, which in turn can have a damaging impact on the environment. Advocating for more sustainable FIFO roles may mean that companies may be empowered to continue operating with majority FIFO workforces, which may ultimately be damaging for communities and social relationships. However, better organisation of FIFO work can support human wellbeing. As a feminist, and gender equity advocate, managing my influence on this research in an area that is particularly hyper-masculine was a key focus. Throughout the research project, I used a pragmatic approach to dealing with these tensions, and engaged in reflexivity as a core strategy in maintaining rigor and authenticity of the research findings.

4.7 Maintaining Quality and Rigour in Mixed Methods Research

Maintaining quality and rigor in mixed methods research necessitates consideration of both quantitative and qualitative methodological integrity as well as unique mixed method factors that are beyond the criteria for quantitative and qualitative alone, such as the process of integrating the findings from multiple sources of data (Appelbaum et al., 2018; Levitt et al., 2018). The approach to assessing the quality of mixed method research includes methodological rigor as well as interpretative rigor, both in process and outcomes (O’Cathain, 2010; Teddlie & Tashakkori, 2009). As such, one component of maintaining the quality of this research was achieved through the alignment of the project’s contextual elements as described in this chapter, which also includes a justified rationale for the use of a mixed method design.

During the course of the project I endeavoured to integrate the quantitative and qualitative approaches both in process as well as analysis. For instance, the participants for Phase Two were drawn from the overall sample from Phase One. The interview guide for Phase Two was developed to specifically explore Phase One results, and to extend the explanation of these. Further to this, I dedicated a specific phase of this project to focus on integration and informing recommendations. In terms of analysis, the integration for an explanatory sequential design is recommended to include a joint display (Creswell & Plano Clark, 2017), and this was therefore used for the integration in this project. Joint displays enable transparency and thoroughness, as well as providing a cognitive framework for the researcher to consider the findings together (Guetterman, Fetters, & Creswell, 2015). In undertaking this integration, I employed strategies proposed by Yin (2006) and Woolley (2009), such as valuing the contribution of data from both Phase One and Two, and ensuring the findings were authentically drawn from the data. This was an iterative process, and necessitated using qualitative rigor strategies such as reflexivity (O’Connor, 2011), as I encountered the process of integration to be distinctly interpretative in nature.

To ensure quality and rigour in the qualitative component of this research I employed a number of methods. Reflexivity, a methodological audit trail, and engaging in respondent validation were specifically used to assist in the quality of the research, and limit my influence on the decisions and interpretations as much as possible. The use of a reflexive journal and engaging in supervision was intrinsic to the process of reflexivity (Ortlipp, 2008). The reflexive journal was used throughout the research project, and was used to record methodological decisions, in order to create a methodological audit trail (Bowen, 2009). Reflection is a key part of qualitative research, whereby engaging in reflexivity allows the researcher to be sensitive

and reflective of prior experiences, assumptions and processes that shape how, and why data is collected and understood (Mays & Pope, 2000). Through reflexivity, the researcher can explicitly recognise and address personal and intellectual predispositions, sociocultural context, and value systems that inevitably can impact on decisions made and the research process, as well as acknowledgement of the wider social setting within which the research is embedded (Kitto, Chesters, & Grbich, 2008).

The principle of saturation usually poses that recruitment for qualitative research ceases once sufficient commonalities have been identified within the recounts of participants and no new information is being extracted from the data (Guest, Bunce, & Johnson, 2006). Saturation is aimed for to ensure a full and robust capture of the experience under question is fulfilled (O'Reilly & Parker, 2013). Saturation was a dynamic process that continued to be evaluated throughout this project, and was of particular empirical and conceptual significance in the matter of sample size and analysis in Phase Two (O'Reilly & Parker, 2013).

4.8 Handover

In this chapter I discussed my context and position as a researcher, which informs how I have approached the current project in terms of epistemology, theoretical perspective, mixed methods approach and design. The strategies employed to maintain the quality and rigor during the course of the project were discussed. In the next chapter, I will describe the specific methods used for Phase One: Online surveys.

Chapter 5 Method Phase One: Online Surveys

5.1 Pre-start

In this chapter I will outline the methods used for Phase One of the project. Phase One comprised three online surveys utilising a range of validated measures to assess the relationships between a range of on-site and off-site factors (satisfaction with the FIFO lifestyle, perceived social support, and sense of community in home and site settings), satisfaction with life, and depression, anxiety, and stress. Phase One addresses Objective 1 and 2, as highlighted in yellow below (see Figure 4):

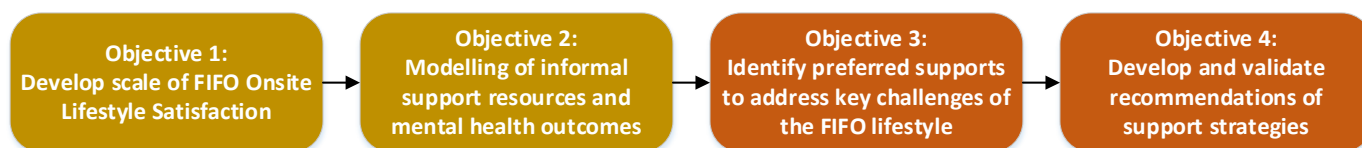


Figure 4. Flow Diagram of Project Objectives for Phase One Addressing Objective 1 and Objective 2

5.2 Design

Phase One is the quantitative component of the explanatory sequential design of the project. This phase employed a prospective survey design with online surveys administered at two time points (Time 1 and Time 2) six months apart, and an additional data collection point 2 weeks after Time 1 to collect re-test data for validation of a new scale. This prospective design was deemed appropriate to answer the research question and attend to the objectives, by gathering a detailed picture of the FIFO experience and support strategies at two time points.

5.3 Participants

Due to the nature of the design, participants at Time 2 and the re-test survey were subsets of the Time 1 participants.

5.3.1 Time 1

In total, 593 participants accessed the online survey at Time 1. Initial screening of the downloaded data identified 202 cases where the survey had not been completed past the first

page (participant information sheet). These cases were deleted, leaving 391 cases for the final dataset (65.93% completion rate). All participants were adults employed in the Australian mining sector in a FIFO position. The total of 391 participants who completed the survey included 222 men (56.80%) and 169 women (43.20%). The age range was 21 to 68 years ($M=37.00$ years, $SD=10.82$). There was variability in how long participants had been engaged in a FIFO lifestyle, ranging from less than 1 year to 35 years; however half the sample (51.40%) had worked FIFO for 5 years or less. Participants also reported how long they would like to continue working FIFO, with 68.00% reporting they would like to continue for 5 years or less. Participants were employed within a range of positions, with representation from administration, plant operation, medical personnel, health and safety, security, management, geology, environmental science, transportation, and engineering. Approximately 80% of the sample held a home residence in Western Australia, and 11% in Queensland. Participants who reported being single made up 22.00% of the sample, while 39.90% reported being married and 35.30% otherwise partnered, with the remaining 2.80% reporting their relationship status not fitting these descriptions.

5.3.2 Retest: FIFO On-site Satisfaction Scale

Validation of the FIFO On-site Lifestyle Satisfaction Scale used the dataset from Time 1 ($N=391$), as well as the follow up retest survey. Of 128 completed retest surveys, 89 were successfully matched to the earlier survey using the participants' self-generated codes, forming the dataset for the test-retest analyses. The 89 participants in the retest dataset included 49 women (55.10%) and 40 men (44.90%), ranging in age from 23-68 years ($M=37.50$ years, $SD=11.49$). The majority of participants reported their permanent residence was in Western Australia (84.30%). Most participants reported being in a partnered relationship, with 33.70% being married and 40.50% being otherwise partnered, and 25.80% reporting their status as single.

5.3.3 Time 2

From the 391 participants who participated at Time 1, 235 (60.10% of total participants) registered their interest to participate at Time 2. Each participant was contacted with a link to the Time 2 survey, and 104 participants (44.25% who registered interest) completed the survey. Out of these, 92 participants were still working FIFO, and were retained for analysis.

Due to the prospective design of the study, demographic details were not collected at Time 2. The participants who were successfully able to be matched to Time 1 dataset using

their self-generated code included 43 participants. The sample included 24 women (55.80%) and 19 men (44.20%), participants were aged between 23-54 years ($M=36.32$, $SD=9.56$), and the majority held their permanent residence in Western Australia (88.40%). Participants who described their relationship status as single made up 37.20%, with 62.80% being married or otherwise partnered.

5.4 Development of the FIFO On-site Lifestyle Satisfaction Scale

In determining the constructs of interest to be measured in this phase of the research, a person's satisfaction with FIFO and life on-site was considered important to include. The association of engaging in FIFO work and potential mental ill-health issues had been recognised, and this therefore formed the basis to include this. An existing demographic survey titled the FIFO Lifestyle Survey by Sibbel (2010) had identified a number of items that assessed the experience of living FIFO, and had been successfully used in her study. These items formed the basis of the FIFO On-site Lifestyle Satisfaction Scale as part of this study. A literature search to supplement the items included by Sibbel (2010) was conducted, and identified that the current role a person was undertaking as well as their level of earned income were commonly reported as contributing to their level of satisfaction with FIFO overall.

Best practice in scale development requires a number of activities, large sample sizes, and a substantial amount of time. DeVellis (2016) outlines specific steps in order to rigorously develop a new scale according to best practice. The first of these steps is to clearly define the construct to be measured, identify the specificity required, and ensure the construct proposed for the scale is distinct from other constructs. Once the construct is defined, an item pool is recommended to be generated (DeVellis, 2016). This pool should include considerably more items than intended to be used in the final scale (around two or three times the number planned to be used), in order to select a set of items that best achieve the greatest internal consistency in the final scale. Alongside developing the item pool, it should also be considered what the format for measurement will be, that being, the response format people completing the scale will use (for example, Likert scale, semantic differential, or visual analog scale). Once the item pool and appropriate measurement format have been selected, these items should be reviewed by experts (DeVellis, 2016). Experts are defined by being knowledgeable in the content area of the proposed construct for measurement. Once the items have been reviewed, the inclusion of validation items should be considered, and the items pre-tested by a large development sample (at least 300 people). DeVellis (2016) outlines the final stages as evaluating the scale as a whole, and assessing the length of the scale as a whole.

While it would have been beneficial to work through the full process and develop further items for testing, this was not feasible in the current study. Time restraints for conducting a PhD research program did not permit a full measurement study given the current project included a prospective longitudinal component. A pragmatic decision was made to include the items from Sibbel (2010), as well as two other items identified from the literature search, as completing a full measurement study may have impacted recruitment for the overall project. This pragmatic decision was supported as Sibbel (2010) had completed the preliminary work and successfully used the items in her study, and there was an identified need to include a measure that focused on the experience of living FIFO in the current project.

5.5 Measures

A range of scales were used to measure support, alcohol use, FIFO on-site lifestyle satisfaction, and elements of subjective wellbeing. The main survey incorporated all scales at Time 1 and Time 2, while the retest survey consisted of the FIFO On-site Lifestyle Satisfaction Scale alone. For each time point and the retest the relevant scales were developed into an online survey hosted on Qualtrics.com.

FIFO On-site Lifestyle Satisfaction Scale (FOLSS). Each item is presented with a 5-point response scale ranging from *1 Not Satisfied* to *5 Very Satisfied*. Example items for the FOLSS include *Your current roster*, and *Company support to attend to non-work issues*. Two open ended questions were included in the survey to examine the construct validity of the FOLSS. These were presented as two statements; 'Please provide a list of aspects of FIFO that you **are** satisfied with', and 'Please provide a list of aspects of FIFO that you **are not** satisfied with'. Further detail of the development and validation of the FOLSS will be described in Chapter 6.

Satisfaction with Life Scale (SWLS; Diener, Emmons, Larson, & Griffin, 1985). The SWLS is a 5-item single dimension scale that measures overall life satisfaction as a cognitive subjective judgement (Diener et al., 1985). Example items include *In most ways my life is ideal* and *I am satisfied with my life*. Responses are given using a 7-point Likert response scale from *1 Strongly disagree* to *7 Strongly agree* (Pavot & Diener, 1993). The SWLS has been psychometrically tested in numerous studies (e.g. Arrindell et al., 1999; Neto, 1993), with reliability (Cronbach's α) reported consistently as approximately .80 (Hultell & Gustavsson, 2008). Convergent and discriminant validity of the SWLS has also been evaluated with findings that show SWLS correlates with other scales that measure subjective well-being, but still remains a separate construct (Arrindell et al., 1999; Pavot & Diener, 1993).

Short form of the Depression Anxiety Stress Scale (DASS-21; Lovibond & Lovibond, 1995b). The DASS-21 is the short form of the original DASS, and is comprised of three 7-item self-report scales that measure depression, anxiety, and stress (Lovibond & Lovibond, 1995b).

A 4-point severity scale measures the extent to which each state has been experienced over the past week, from 0 *Did not apply to me at all*, to 3 *Applied to me very much, or most of the time*. The three factor structure of the DASS-21 provides separate scores for each scale, and can be totalled to provide an overall score. Example items from the Depression subscale include *I felt downhearted and blue* and *I felt that I had nothing to look forward to*. Example items from the Anxiety subscale include *I was aware of the action of my heart in the absence of physical exertion* and *I felt I was close to panic*. Example items for the Stress subscale include *I found it hard to wind down* and *I found myself getting agitated*. The reliability and validity of the DASS-21 has been supported over time and in multiple populations (Henry & Crawford, 2005). Reliability coefficients for the DASS-21 scales are .88 for depression, .82 for anxiety, .90 for stress, and .92 for the total scale (Henry & Crawford, 2005).

Brief Sense of Community Scale (BSCS; Peterson, Speer, & McMillan, 2008). The BSCS is four factor, 8-item (2-items per factor) self-report measure of sense of community. Participants use a 5-point scale (*1 Strongly disagree* to *5 Strongly agree*) in order for their needs fulfilment, group membership, influence, and emotional connection to be measured. These factors are designed to align with the dimensions of the psychological sense of community theory posited by McMillan and Chavis (1986), and represent four factors that underlie the singular construct of sense of community. Example items for each of the four constructs include *I can get what I need in this neighbourhood* (Needs Fulfilment), *I belong in this neighbourhood* (Membership), *I have a say about what goes on in my neighbourhood* (Influence), *I have a good bond with others in this neighbourhood* (Emotional Connection). The reliability and validity of the BSCS has been demonstrated in the originating study, with reliability coefficients of .92 for the overall BSCS, and alphas among the subscales were .86 for needs fulfilment, .94 for membership, .77 for influence, and .87 for emotional connection (Peterson, Speer, & McMillan, 2008). The BSCS has also demonstrated discriminant and convergent validity, being positively related with community participation and psychological empowerment, and negatively related to depression (Peterson et al., 2008). In my research, the BSCS was adapted and presented twice to compare on-site and off-site sense of community. This was done by presenting the scale with the word 'neighbourhood' in the first presentation, and with 'camp/town' in the second presentation. Participants were asked to refer to their home, or site, when responding to the relevant scale adaptation.

Multidimensional Scale of Perceived Social Support (MSPSS; Zimet, Dahlem, Zimet, & Farley, 1988). The MSPSS is a 12-item, self-report measure of perceived social support adequacy. Participants use a 7-point scale (*1 Very strongly disagree*, to *7 Very strongly agree*) to respond to various statements regarding their perceived social support from friends, family, and a significant other. The measure reports a three factor structure (perceived support from

friends, family, and significant other) that can also be totaled to provide an overall score (Canty-Mitchell & Zimet, 2000). Example items for the MSPSS include *I have friends with whom I can share my joys and sorrows* (Friends), *I get the emotional help and support I need from my family* (Family), and *There is a special person who is around when I am in need* (Significant Other). The reliability and validity of the MSPSS has been supported in a variety of contexts, with reliability coefficients ranging from .86 to .91 for each of the three subscales and .86 for the entire scale capturing global social support (Bruwer, Emsley, Kidd, Lochner, & Seedat, 2008).

Alcohol Use Disorders Identification Test (AUDIT; Babor, Higgins-Biddle, Saunders, & Monteiro, 2001). The AUDIT is a 10-item instrument used for identifying harmful alcohol use (Babor, La Fuente, Saunders, & Grant, 1992). The instrument includes questions to assess the amount and frequency of alcohol intake (*How often do you have a drink containing alcohol?*), alcohol dependence (*How often in the last year have you found you were not able to stop drinking once you had started?*), and problems related to alcohol consumption (*How often during the last year have you had a feeling of guilt or remorse after drinking?*) using relevant 5-point response scales such as *Never to Daily or almost daily*; or alternatively *Never to Four or more times a week*. Responses are summed for an overall score ranging from 0-40, with 8 and above indicating potentially hazardous alcohol intake (Reinert & Allen, 2007; Saunders, Aasland, Babor, De La Fuente, & Grant, 1993). The AUDIT is a widely used instrument demonstrating reliability and validity in a range of contexts and populations, with coefficients ranging from .81 to .94 for internal consistency, and .70 to .89 test-retest reliability (Reinert & Allen, 2002, 2007).

Time 1 Survey open ended questions. The open ended questions that supplemented the quantitative measures enabled participants to give specific feedback about their support options. The questions included:

- *To your knowledge, what support is currently available for those engaged in a FIFO Lifestyle?*
- *In your opinion, what is the best way to support people who are engaged in a FIFO lifestyle?*
- *In your life if you were faced with difficulties, where or to whom would you go for support and/or assistance? Why?*

Time 2 Survey open ended questions. A number of open ended questions were also included at the conclusion of the Time 2 survey. To fit with the prospective design, Time 2 questions focused on changes to support, and changes in experience that had occurred within the last six months. The questions included:

- *Reflecting back on your time working FIFO, what do you think could have better supported this lifestyle?*
- *Reflecting back on the last 6 months, what changes (if any) in terms of support have you noticed?*
- *In your opinion, what other ways of supporting people who live FIFO are needed?*

5.6 Procedure

Prior to commencement, approval to conduct this study was obtained from Curtin University Human Research Ethics Committee (HREC approval number RDHS-01-14). Information about the study was disseminated through social media avenues (Twitter, Facebook), flyers on community noticeboards, and posts on online discussion forums. Relevant FIFO related organisations were contacted and requests made for study information to be sent to mailing list recipients. Interested persons were able to follow a link to the online participant information sheet and, upon consenting to participate, were directed to the first online survey hosted on Qualtrics.com. The average time to complete the survey was 18 minutes. At the completion of the survey, participants were asked to make a confidential code which would be used to link responses to future study participation and were then redirected to a debrief page. So that identifying information would not be linked to survey responses, after being redirected to the debrief information participants were also invited to provide a private email address if they were interested in participating in future parts of the study. Participants were given options to register their interest in being contacted for the retest of the FOLSS two weeks later (for Objective 1), completing the main survey at Time 2 (for Objective 2), and/or participating in an interview for Phase Two (Objective 3).

Participants' responses to register their interest in future parts of the study were downloaded and made into a spreadsheet in Microsoft Excel. Where participants had expressed interest in further participating, the date of completion of the Time 1 main survey was used to then send a follow up for the FOLSS two weeks later, and a follow up for the Time 2 main survey six months later. The procedure for contacting participants for Phase Two interviews will be described in Chapter 10 and Chapter 11.

Data collection for Time 1 occurred between April and October 2015. Data collection for retest for the FOLSS occurred concurrently, with interested participants being contacted two weeks after their completion of Time 1, with data collection ceased in November 2015. Data collection for Time 2 occurred between October 2015 and June 2016. The survey responses for Time 1, retest of the FOLSS, and Time 2 were individually downloaded into SPSS

v.22 for analysis, and the responses to the open ended questions were downloaded into Microsoft Excel for coding.

5.7 Analysis

The analysis process addressed each objective sequentially.

5.7.1 Objective 1: Develop FIFO on-site lifestyle satisfaction scale

The utility of a new measure is increased where it can be shown to be both valid and reliable. Exploratory (EFA) and confirmatory factor analyses (CFA) were performed to determine the factor structure of the FOLSS measure. To form the dataset for EFA, 100 cases were randomly selected from the total dataset (391 cases), and the remaining 291 cases formed the dataset for CFA. To test for internal reliability Cronbach's alpha was computed. An intra-class correlation was conducted to assess test-retest reliability. As part of the measure development process we explored the relationship of the new measure with other established measures. We hypothesised that FIFO on-site lifestyle satisfaction should be related to the theoretically similar construct of life satisfaction (Erdogan et al., 2012), and therefore that the new measure would be strongly positively correlated with the Satisfaction with Life Scale (SWLS; Diener et al., 1985), demonstrating convergent validity. Employees who are satisfied with their FIFO lifestyle are less likely to experience depression, anxiety, and stress (Barclay et al., 2013; Voysey, 2012), therefore we would expect the new measure to be moderately negatively correlated with Depression Anxiety Stress Scale (DASS-21; Lovibond & Lovibond, 1995b), supporting divergent validity.

In order to assess construct validity of the FOLSS the responses from the first 25 cases from each of the two open ended questions ('Please provide a list of aspects of FIFO that you **are** satisfied with', and 'Please provide a list of aspects of FIFO that you **are not** satisfied with') were coded using content analysis (Hsieh & Shannon, 2005) by two members of the research team individually. Predetermined codes, reflecting the seven scale items, were supplemented with codes emerging during the analysis. Cohen's Kappa was calculated using SPSS v.22. The coding process was then discussed with the research team, and the remainder of the responses coded using content analysis (Hsieh & Shannon, 2005). Results for Objective 1 will be described in Chapter 6.

5.7.2 Objective 2: Modelling of informal support resources and mental health outcomes

5.7.2.1 Time 1

As described in Chapter 3, the overarching research question for Phase One asks *Does sense of community in relation to home and mine site contexts, perceived social support, FIFO on-site lifestyle satisfaction, and alcohol use predict mental health outcomes (depression, anxiety, and stress, and satisfaction with life) for people who FIFO?* The hypothesis addressing this research question is:

Hypothesis 1: *Informal supports of sense of community (at home and on-site), social support, and FIFO on-site lifestyle satisfaction, and alcohol use, are significant predictors of mental health outcomes (Depression, Anxiety and Stress, and Satisfaction with Life) at Time 1.*

CFA was performed using AMOS (v.22) to confirm the factor structure of each scale prior to the structural model analysis. Scale reliability was calculated for each scale using Cronbach's alpha. Descriptive statistics were calculated, and a correlation matrix was computed to assess the relationships among variables.

Structural equation modelling (SEM) using AMOS (v. 22) was used to test the hypothesised model. SEM enables the assessment of relationships among latent constructs and is more rigorous than the alternative regression analysis due to the ability to control for measurement error (Kline, 2005). Assumption testing including univariate and multivariate normality, linearity, and multicollinearity was conducted. Bivariate correlations were inspected prior to conducting the SEM to identify the variables that needed to be controlled for when computing SEM path coefficients. To evaluate the model, a range of fit statistics for absolute fit and goodness of fit were reviewed: Chi-square, root mean square error of approximation (RMSEA), comparative fit index (CFI), goodness of fit index (GFI), non-normed fit index (NNFI), and standardised root mean square residual (SRMR). The model was adjusted based on the fit statistics and with reference to modification indices. Results of the analysis for Objective 2, Time 1 is described in full in Chapter 7.

5.7.2.2 Time 2

The analysis of Time 2 sought to answer the research question *Does the model developed at Time 1 provide good fit to the data at Time 2?* To address this, it was hypothesised:

Hypothesis 1: *There will be an indirect effect of sense of community (on-site) on mental health outcomes (Depression, Anxiety and Stress, and Satisfaction with Life) through FIFO on-site lifestyle satisfaction.*

Hypothesis 2: *There will be a direct effect of social support on mental health outcomes (Depression, Anxiety and Stress, and Satisfaction with Life), and an indirect effect through FIFO on-site lifestyle satisfaction.*

Hypothesis 3: *The AUDIT will be a significant direct predictor of mental health outcomes (Depression, Anxiety and Stress, and Satisfaction with Life).*

Prior to the structural model being analysed, a correlation matrix and Cronbach's alphas for each of the scales at Time 2 were examined. Structural equation modelling (SEM) using AMOS (v. 22) was used to test Time 2 data in the Time 1 final model, to assess the strength of the model at different time points.

5.7.2.3 Sample Comparison and Post-Hoc Exploratory Analysis

The aim of the follow up analyses was to test whether Time 2 participants were representative of Time 1 data. Independent samples *t*-tests were used to compare the sample who continued participation for Time 2, and participants who responded at Time 1 only. Following this, the means, standard deviations, and ranges for each scale for the matched sample at Time 1 and Time 2 were calculated and compared. To assess changes at two time points, a series of paired samples *t*-tests were performed to compare the means of each scale for the matched sample at Time 1 and Time 2.

Two multiple regression analyses were performed to test the contribution of informal supports at Time 1 for Time 2 mental health outcomes. The proportion of variance accounted for by sense of community on-site, social support, and FIFO on-site lifestyle satisfaction for Time 2 satisfaction with life was calculated. The proportion of variance accounted for by sense of community on-site, social support, and FIFO on-site lifestyle satisfaction for Time 2 depression, anxiety and stress was calculated. Detailed results of the Time 2 analysis are described in Chapter 7.

5.8 Handover

In this chapter the methods for Phase One have been outlined. Over the next two chapters, the results for each objective will be described and discussed.

Chapter 6 Phase One, Objective 1: FIFO On-site Lifestyle Satisfaction Scale

6.1 Pre-start

In this chapter I will describe the development process of the FIFO On-site Lifestyle Satisfaction Scale (FOLSS). The acknowledgement of FIFO being more than a job, and instead representing a total lifestyle (Sibbel, 2010), meant that there was a need to measure satisfaction with the lifestyle in order to understand the role of this for wellbeing. As highlighted below in Figure 5, this was to address Objective 1:

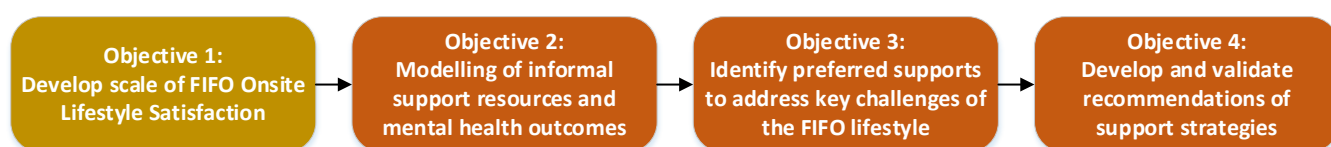


Figure 5. Flow Diagram of Project Objectives Addressing Objective 1

6.2 Factors affecting Satisfaction with FIFO

There are a number of factors that affect levels of satisfaction with a FIFO lifestyle. The FIFO roster has been identified as particularly influential on the experience of FIFO, with great variability in preference for rosters depending on the individual (Henry et al., 2013; House of Representatives Standing Committee on Regional Australia, 2013). The opportunity for bonding with colleagues through social activities and facilities, promoting a sense of camaraderie on a mine site, has also been identified as making the experience of FIFO more enjoyable (McDonald, Mayes, & Pini, 2012; Perring et al., 2014). Workers' knowledge of resources offered by their employing company to support them in their life outside of work is also thought to influence the capacity for coping with the FIFO lifestyle (Gardner et al., 2018; Vojnovic et al., 2014). In conjunction with support from employing companies, the quality of accommodation supplied for staff (Sibbel et al., 2016) as well as the reliability and availability of communication facilities for workers to connect with friends and family members off-site are also of particular concern for people living FIFO and is important for sustaining a rewarding FIFO lifestyle (Education and Health Standing Committee, 2015; Parker et al., 2018; Perring et al., 2014). Perceptions of the job as enjoyable and gratifying largely influence overall satisfaction with this lifestyle (Barclay et al., 2013; Barclay et al., 2016; Misan & Rudnik, 2015; Torkington et al., 2011).

6.3 Measuring the FIFO experience

With the rise in recognition of the complex nature of FIFO and its impacts on workers, the body of research to provide insight into this experience is increasing. The approach to investigating FIFO dictates the kind of measures used to gain information about different facets of this experience. As participation in a FIFO schedule is directly linked to employment, much research has focused on the work related aspects, including measures of job satisfaction, employee retention, burnout, turnover intention, and job embeddedness (e.g. Beach, Brereton, & Cliff, 2003; Brown et al., 2014; Hutchings, de Cieri, & Shea, 2011; Iverson & Maguire, 2000; Jenkins, 1997). In addition to approaching FIFO as employment, research has also sought to measure the impacts of working FIFO on wellbeing, stress levels, and social relationships (Barclay et al., 2013; McPhedran & De Leo, 2014). Recently quantitative studies that include both measures of employment and personal factors, as well as studies that use qualitative methodologies, have increased, indicating a rise in understanding of the complex and multi-faceted nature of the FIFO experience (e.g. Blackman et al., 2014; Cameron, Lewis, & Pfeiffer, 2014; McDonald et al., 2012; Misan & Rudnik, 2015; Perring et al., 2014).

6.4 Developing the Measure

There have been endeavours to explore satisfaction with FIFO (e.g. Gent, 2004; Sibbel, 2010; Voysey, 2012); however, there is currently no measure of satisfaction with FIFO that incorporates both job and other on-site factors. Given this, a need was identified for an easy to use, reliable and valid measure to provide insight into how satisfied a person is with their lifestyle working FIFO, recognising that FIFO offers and demands more than solely employment. As reviewed above, previous research indicates that key aspects of the FIFO lifestyle, linked to the on-site location, have a significant influence on wellbeing and how an individual copes with living and working FIFO (e.g. Barclay et al., 2013; Education and Health Standing Committee, 2015; Torkington et al., 2011). These key aspects are environment, roster, communication facilities, social engagement opportunities, position, and income (McDonald et al., 2012; Misan & Rudnik, 2015; Parker et al., 2018; Perring et al., 2014; Torkington et al., 2011; Vojnovic et al., 2014). At present, there is no tool with which to accurately and directly capture the association with wellbeing of these key aspects.

A succinct, easy to use self-report measure that captures the satisfaction with FIFO specific factors has the potential to provide insight into individual wellbeing and mental health, and overall satisfaction with living FIFO (see Table 1). Judgments of satisfaction are dependent on the comparisons an individual makes between their unique circumstances and those they deem to be of acceptable or ideal standards (Diener et al., 1985). In this way, the individual identifies the acceptable standards, rather than these standards being externally imposed. This

makes the use of self-report response style ideal for measuring the concept of satisfaction with the FIFO lifestyle. The FOLSS utilised a five point satisfaction rating scale, including *1 Very dissatisfied, 2 Dissatisfied, 3 Neutral, 4 Satisfied, and 5 Very satisfied*.

Table 1.
Items for the FIFO On-site Lifestyle Satisfaction Scale (FOLSS)

FIFO On-site Lifestyle Satisfaction	
“Please rate your level of satisfaction with the following aspects of your FIFO lifestyle:”	
1	Your current roster*
2	Social aspects of your work environment (e.g. friendship, social activities, physical activities)*
3	Company support to attend to non-work issues (e.g. family or personal issues)*
4	Quality of accommodation on-site*
5	Ease of communication from your site, to friends and family off site*
6	Income
7	Current position

Note: *Item wording informed by Sibbel (2010). All items are rated on a 5-point satisfaction scale from *1 Very dissatisfied, to 5 Very satisfied*

6.5 Method

The data collection time points of relevance for measure development were Time 1, and the re-test follow up survey 2-weeks later. The measures used for convergent and divergent validity included the Satisfaction with Life Scale (Diener et al., 1985) and the Depression, Anxiety, Stress Scale (Lovibond & Lovibond, 1995b) respectively. Please refer to Chapter 5 for the full description of the design, participants, measures, and procedure of the FOLSS development.

6.6 Results

6.6.1 Exploratory Factor Analysis

To investigate the underlying structure of the 7 item FOLSS, a random selection of 100 cases from the 391 cases of the full dataset were subjected to principal axis factoring with an oblimin rotation (as several of the item correlations were $>.3$). Prior to running the exploratory factory analysis (EFA), examination of the data indicated that items were reasonably, but not perfectly, normally distributed. Given the robust nature of factor analysis, this was not considered problematic (Tabachnick & Fidell, 2013). A single factor (with Eigenvalue exceeding

1) was identified as underlying the 7 item survey instrument (see Table 2). Examination of the scree plot confirmed the extraction of a single factor. In total, this factor accounted for 32.08% of the total variance.

Table 2.

Exploratory Factor Analysis Factor Loadings of the Seven Item FIFO On-site Lifestyle Satisfaction Scale

Item	Loadings	
1. Your current roster	.66	
2. Social aspects of your work environment	.60	
3. Company support to attend to non-work issues	.65	
4. Quality of accommodation on-site	.39	
5. Ease of communication from your site, to friends and family off site	.51	
6. Income	.45	
7. Current position	.66	
Percentage of Variance:		32.08%

6.6.2 Confirmatory Factor Analysis

The remaining 291 cases formed the sample used to conduct CFA using SPSS AMOS v. 22. The model identified from the exploratory factor analysis was tested against the independence model for goodness of fit using recommended cut-offs for key fit indices (Chen, Curran, Bollen, Kirby, & Paxton, 2008; Hu & Bentler, 1999; Schumacker & Lomax, 2004). The relative chi-square (χ^2/df), Root mean square error of approximation (RMSEA), Comparative fit index (CFI), Non-normed fit index (NNFI), and Standardised root mean square residual (sRMR) values are presented in Table 3, and indicate the proposed model meets criteria for good model fit (RMSEA statistic borderline). The model diagram with factor loadings is presented in Figure 6.

Table 3.

Fit indices for Confirmatory Factor Analysis of the Seven Item FIFO Lifestyle Satisfaction Survey

	df	χ^2/df	RMSEA	CFI	NNFI	SRMR
FOLSS	14	3.04	.08	.94	.91	.05
Recommend cut-offs for good model fit		1.0 < x < 5.0 (Schumacker & Lomax, 2004)	<.08 (Chen et al., 2008)	≥.9 (Hu & Bentler, 1999)	≥.9 (Hu & Bentler, 1999)	≤.08 (Hu & Bentler, 1999)

Note: df= Degrees of freedom; χ^2/df = Chi-square divided by df; RMSEA= Root mean square error of approximation; CFI= Comparative fit index; NNFI= Non-normed fit index; SRMR= Standardised root mean square residual.

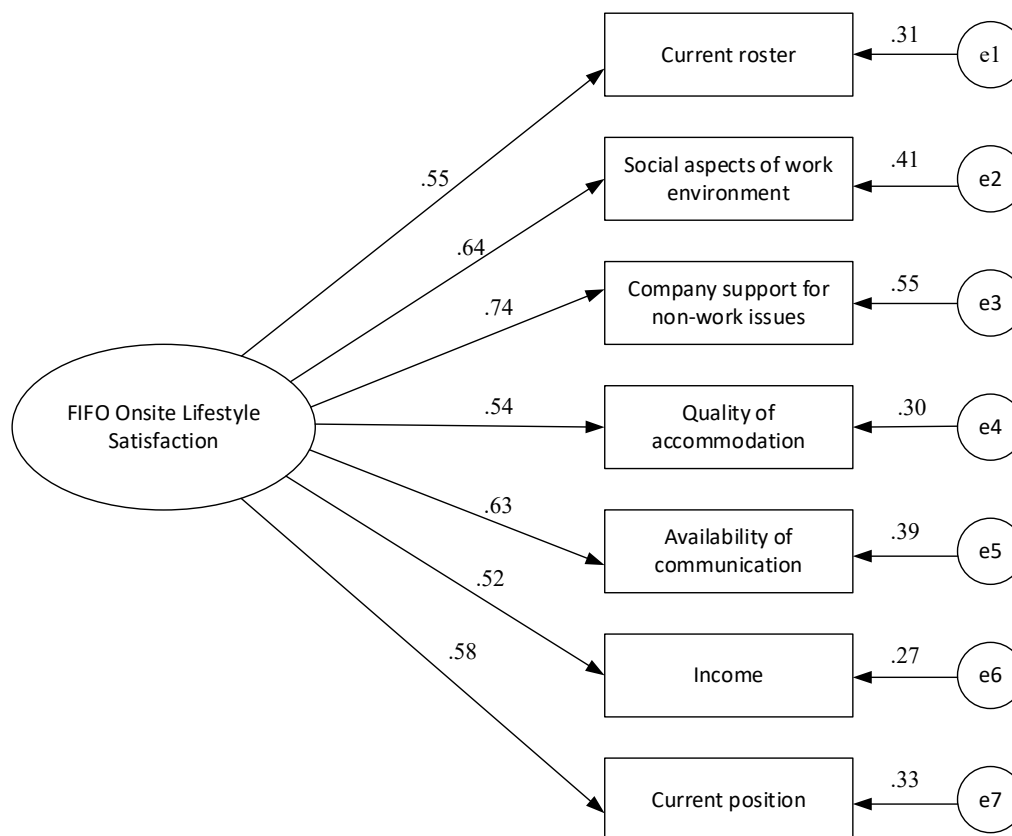


Figure 6. Confirmatory Factor Analysis Factor Loadings of the Seven Item FIFO On-site Lifestyle Satisfaction Scale

6.6.3 Reliability and validity

The datasets used for the EFA and CFA analysis were merged to conduct internal reliability and validity analyses. Reliability analysis for the FOLSS indicated the measure had acceptable internal reliability (Cronbach's $\alpha = .80$).

To assess test-retest reliability over the two week period, an intraclass correlation (ICC) was calculated for the FOLSS total scores from the initial survey and follow up retest ($N=89$). The ICC coefficient of .81 with 95% CI [.71, .88] $F(88, 88)=5.43, p<.001$, indicates a strong level of consistency across the two time points. This supports the reliability of the FOLSS over time.

The FOLSS was correlated with the SWLS, a theoretically similar construct of life satisfaction, to assess convergent validity. There was a strong, positive relationship $r= .60, p<.001$. To assess the FOLSS discriminant validity, bivariate correlation analysis was conducted to assess the size and direction of the relationship between FOLSS scores and the total and individual scale scores of the DASS. The normality assumption for the DASS was violated, and inspection of the histogram plots indicated the data was not normally distributed. Spearman's rho is robust to violations of normality, and therefore was used to interpret this relationship. The correlation between the FOLSS and the DASS total indicated a negative relationship of

medium strength, $r_s = -.44$, $p < .001$. The correlation between FOLSS and the depression scale was negative and nearing a strong relationship $r_s = -.50$, $p < .001$. Correlations of the stress and anxiety scales with the FOLSS were negative and moderate $r_s = -.35$, $p < .001$, and $r_s = -.30$, $p < .001$ respectively.

6.6.4 Descriptive statistics

Descriptive statistics were calculated for the relevant measures, with further detail provided for the FOLSS scale by calculating descriptive statistics for the scale according to particular demographic groups. This was done to examine patterns in the scale responses with relation to demographic factors. First, the descriptive statistics for the overall FOLSS, DASS-21 (including subscales) and SWLS were examined (refer Table 4).

Table 4.

Range, Mean with 95% Confidence Intervals, and Standard Deviation for the FOLSS, SWLS, DASS-21 (and subscales)

Scale	N	Range	Actual range	M [95% CI]	Std. dev
FOLSS	391	7-35	12-35	25.40 [24.93, 25.87]	4.74
DASS-21	391	0-63	0-60	10.87 [9.82, 11.92]	10.55
Depression Subscale	391	0-21	0-21	3.72 [3.28, 4.17]	4.47
Anxiety Subscale	391	0-21	0-18	2.23 [1.91, 2.54]	3.17
Stress Subscale	391	0-21	0-21	4.92 [4.50, 5.34]	4.21
SWLS	391	5-35	5-35	22.86 [22.18, 23.55]	6.91

Note: FOLSS - FIFO On-site Lifestyle Scale; DASS - Depression Anxiety and Stress Scale; SWLS – Satisfaction with Life Scale

Second, descriptive statistics were calculated for the FOLSS to examine patterns in scale scores by gender, expected FIFO lifespan, and relationship status (refer Table 5).

Table 5.

Range, Mean with 95% Confidence Intervals, and Standard Deviation for the FOLSS by Gender, Time Wanting to Continue FIFO Work, and Relationship Status

Scale	N	Percent	Range	Actual range	M [95% CI]	Std. dev
FOLSS			7-35	12-35	25.40 [24.93, 25.87]	4.74
Gender						
Male	222	56.78%		12-35	25.19 [24.54, 25.84]	4.93
Female	169	43.22%		13-35	25.68 [25.00, 26.36]	4.48

Scale	<i>N</i>	Percent	Range	Actual range	<i>M</i> [95% CI]	Std. dev
Time Cont. FIFO (years)						
≤1 year	97	24.81%		12-35	22.66 [21.70, 23.62]	4.79
2-5 years	170	43.48%		13-35	26.06 [25.38, 26.74]	4.48
6+ years	124	31.71%		17-35	26.65 [25.90, 27.39]	4.21
Relationship Status						
Partnered	294	75.19%		12-35	25.59 [25.04, 26.14]	4.78
Single	86	21.99%		12-35	24.94 [23.93, 25.95]	4.68
Other	11	2.82%		17-29	24.00 [21.28, 26.72]	4.05

Note: FOLSS - FIFO On-site Lifestyle Satisfaction Scale

The patterns observed in the scale scores as represented in Table 5 indicated men and women had similar levels of satisfaction with the FIFO lifestyle in the sample. Participants who reported wanting to continue FIFO work for 1 year or less had lower satisfaction with the FIFO lifestyle on average than those who wanted to continue for 2-5 years, or more. Those who were partnered were observed to have a slightly higher, but not significantly higher, satisfaction than those who were single.

6.7 Open Ended Responses

Results of the interrater reliability analysis for the cross-coding of a sample of 25 open-ended responses on areas of satisfaction with FIFO responses indicated high agreement; Cohen's Kappa = .82, $p < .001$. Interrater reliability analysis conducted for the sample of 25 responses of dissatisfaction with the FIFO lifestyle also indicated high agreement; Cohen's Kappa = .90, $p < .001$. Kappa's above .80 indicate almost perfect agreement (Landis & Koch, 1977). The most common satisfaction and dissatisfaction with FIFO lifestyle factors are summarised below in Tables 6 and 7. Responses related to dissatisfaction about living FIFO incorporated more detail, and appeared more emotional than the responses relating to factors that promoted satisfaction. There were also 55 more responses to the open ended question regarding dissatisfaction with FIFO, than the statement regarding satisfaction.

The items of the FOLSS were well reflected in the qualitative responses. Participant comments regarding satisfaction with aspects of their FIFO lifestyle reflected the FOLSS items of Roster, Income, Position, Social Aspects, and Quality of Accommodation (refer Table 6). The sub-categories of Structure of Lifestyle and Time off Opportunities situated within the Roster main category, give further insight into the factors promoting satisfaction with current roster for participants. In addition, participants' comments regarding Facilities and Provisions provided by the employing company on-site gives further understanding of how participants

may assess their satisfaction with the Quality of Accommodation. Facilities and Provisions was therefore presented as a sub-category.

Table 6.

Qualitative Categories for Factors Promoting Satisfaction with FIFO Lifestyle

Category	Sub-Category	Frequency (%) of responses (N=248)	Exemplar quotes
Social Aspects*		75 (30.24)	<p>“Social environment is great. Good support and programs to get involved in.”</p> <p>“The team atmosphere with a traditional FIFO is good as there are usually activities and sporting things organised to get involved and be a part of a group.”</p> <p>“You do make some very strong relationships with the people you work with as you spend so much of your time with them. They become almost like family”</p>
Roster*		74 (29.83)	<p>“With my roster, when I take annual leave I only need to take 8 days in order to get 20 days off which is awesome”</p>
	Structure of Lifestyle	33 (13.31)	<p>“The fact that I am home on week days means I can do my shopping, appointments etc. when other people would normally be at work. The whole lifestyle has given me great life experience”</p> <p>“I love being able to work hard at work, then come home and have quality, uninterrupted time at home”</p>
	Time off Opportunities	54 (21.77)	<p>“Gives a lot of time for family/ travel related activities on break”</p> <p>“I enjoy having a block of time (1 week) completely free of work commitments. It gives me a lot of opportunities to travel”</p>
Position*		58 (23.39)	<p>“I love my job and being on-site where 'all the action is'”</p> <p>“Current role gives a good level of autonomy and responsibility, and also provides a good challenge in a dynamic industry”</p>
Income*		45 (18.15)	<p>“I like the money and how easy it is to save if you have two weeks on-site where you can't spend anything”</p> <p>“Being away from home for 28 days at a time allows me to have very little outgoing expenses such as fuel/ food, social spending</p>

Category	Sub-Category	Frequency (%) of responses (N=248)	Exemplar quotes
Quality of Accommodation*		20 (8.06)	allowing me to save for a larger mortgage and holidays.” “Rooms cleaned twice a week.” “Free accommodation.”
	Facilities and Provisions	76 (30.64)	“People complain but actually don't realise how well we are looked after up there, gym, activities, food, supplies, help if needed there isn't much missing” “The food at my current site is great and keeps me satisfied”

Note: *Indicates FOLSS item

Comments from participants regarding dissatisfaction with their FIFO lifestyle were identified through coding as reflecting FOLSS items relating to Roster, Social Aspects, Company Support, Quality of Accommodation, and Communication (refer Table 7). A sub-category of the main category of Company Support reflects the prominence of Social Politics reflected in participants’ responses. This indicates that the social politics experienced on-site is a particular contributing factor in regards to how satisfied participants are with the support from their employing company. In addition, Food Quality was identified as a sub-category of the Quality of Accommodation, as this was posed as a significant concern to participants in regards to their level of dissatisfaction with the Quality of Accommodation. Additional categories of comments identified that were not reflected in the current FOLSS items were Stress and Fatigue, Travel and Commute, and Lack of Autonomy.

Table 7.

Qualitative Categories for Factors Promoting Dissatisfaction with FIFO Lifestyle

Category	Sub-Category	Frequency (%) of responses (N=303)	Exemplar quotes
Roster*		121 (39.93)	“The 5/2/4/3 roster is exhausting, we call it the 'burn-out' roster” “Missing family, friends, and key events like birthdays/get togethers is tough. There is a sense that you miss out.”
Stress and Fatigue		96 (31.68)	“... I'm exhausted by the end of a swing” “Current economy creates a high level of job insecurity, leading to increased stress” “Often people have a greater expectation of FIFO workers to work longer hours, have less breaks and to hold aspects of the deal against

Category	Sub-Category	Frequency (%) of responses (N=303)	Exemplar quotes
			people such as.. 'we pay for your food, we pay for your accom, so we expect you to work more for us'"
Company Support*		75 (24.75)	"The company's attitude to when you have personal problems, which is to sack them."
	Social Politics	30 (9.90)	"Bullying being a part of the job. People not doing their jobs. Management presenting core values to employees and not abiding by them. Being isolated so these problems can develop as management on-site become gods."
Social Aspects*		52 (17.16)	"The lack of get-together's within my Department and other Departments." "There is no outlet for me so my work consumes me for a whole month. There are no social sports pool bbq etc."
Travel and Commute		47 (15.51)	"Waiting.... always waiting for flights or connections or for the shuttle bus....."
Availability of communication*		43 (14.19)	"Poor wifi and phone reception makes you feel very disconnected from home"
Quality of Accommodation*		37 (12.21)	"Changing rooms means packing up moving into rooms that people may have been sick in (flues love the air conditioning) couples are separated not next to each other. Smelly rooms." "The accommodation is falling apart (rotten in some parts, bad smell, dusty aircon, shower leaking, etc.)."
	Food Quality	48 (15.84)	"Food quality in camp is varied and it is hard to maintain a healthy lifestyle"
Lack of Autonomy		31 (10.23)	"Sometimes the isolation can be annoying. I can't just pop down to the shops or the cinema or go out for dinner whilst on-site as we can't leave the camp" "All the rules - alcohol restrictions, noise restrictions, clothing restrictions, phone restrictions - sometimes I feel like I am being treated like an irresponsible child or living in a prison there are so many rules."

Note: *Indicates FOLSS item

To compare the open ended question responses with the ratings on the FOLSS items, the mean score and standard deviations were presented alongside the percentage of the responses that related to each FOLSS item (including relevant sub-categories) and reflected satisfaction or dissatisfaction with that item (refer Table 8).

Table 8.
FOLSS Item Mean Score and Standard Deviation, with Percentage of Responses Reflecting Satisfaction and Dissatisfaction

FOLSS Item	<i>M (SD)</i>	% Satisfaction Responses ¹	% Dissatisfaction Responses ²
Your current roster	3.58 (1.09)	64.91%	39.93%
Social aspects of your work environment	3.46 (1.01)	30.24%	17.16%
Company support to attend to non-work issues	3.47 (1.10)	-	34.65%
Quality of accommodation on-site	3.65 (0.97)	38.7%	28.05%
Ease of communication from your site, to friends and family off site	3.60 (1.09)	-	14.19%
Income	3.88 (0.90)	18.15%	-
Current position	3.75 (0.95)	23.39%	-

Note: FOLSS items are rated on a scale of 1-5, with higher scores indicating higher levels of satisfaction.

¹Percentage of open ended question responses that reflected satisfaction with the FOLSS item including sub-categories

²Percentage of open ended question responses that reflected dissatisfaction with the FOLSS item including sub-categories

Through examination of the FOLSS item mean scores alongside the percentage of responses reflecting satisfaction or dissatisfaction, the two items with the highest mean score included open ended question satisfaction responses but did not include dissatisfaction responses. Both of these items were also focused on job factors, namely, income and current position. There appeared to be more diversity in satisfaction and dissatisfaction responses with other areas, particularly for social connectedness and support factors, which is reflected by each item including responses from participants for both satisfaction and dissatisfaction categories.

6.8 Discussion

In this research I developed a scale measuring lifestyle satisfaction with on-site factors of FIFO. This is the first reliable and validated measure of satisfaction that is specifically measuring the interface between FIFO as work and more broadly as a lifestyle. Measuring satisfaction with on-site factors of a FIFO lifestyle can enable researchers, practitioners, and employers to account for the contribution that working FIFO may be having on wellbeing. The FOLSS is a short, easy to use to use self-report scale that can be used as a predictor of

outcomes, but also as an outcome itself. The FOLSS is easily inserted into larger surveys, or completed independently by individuals in a short period of time.

Satisfaction with many of the factors represented in the FOLSS has been previously identified as being related to turnover intention (Beach et al., 2003; Brown et al., 2014; Jenkins, 1997). In this sense, use of the FOLSS to assist in gaining insight into the levels of satisfaction of staff is of great importance to employers. As Misan and Rudnik (2015) note, many of the factors that greatly influence satisfaction are within the employing organisation's control to change. Therefore, measuring satisfaction levels with specific on-site factors can greatly assist employers in attending to workers' needs.

6.8.1 Psychometric properties of the FOLSS

The reliability and validity testing of the scale produced sound results, indicating this scale to be a valid and reliable measure of the specified construct. The EFA results indicate the factor structure to be unidimensional, and this model yielded satisfactory fit statistics when subjected to CFA. This indicates that the items included in this scale are indeed all measuring the same construct, and the model identified was of a reasonably good fit to the data (Bentler, 2007). It is important to consider in evaluating fit statistics that, to date, there are no absolute fit statistics that are robust to all conditions (Hooper, Coughlan, & Mullen, 2008; Hu & Bentler, 1999; Tabachnick & Fidell, 2013). The RMSEA, in particular, is highly influenced by sample size, which may explain the slightly higher statistic in this study than what has previously been recommended as a conservative cut-off (Chen et al., 2008).

The intra-class correlation indicates a high level of consistency across the two measured time points, which gives support for the FOLSS being a reliable measure over a two week period (Weir, 2005). Further analysis demonstrated evidence of the validity of the FOLSS, where the scale was found to be positively correlated with the theoretically similar construct of life satisfaction, and negatively correlated with the total DASS-21 and each of its subscales, as expected (Barclay et al., 2013; Iverson & Maguire, 2000; Voysey, 2012).

The responses to the qualitative items give further support to the validity of the FOLSS, as items were well reflected within participant comments thus demonstrating construct validity. Of note, aspects of the FIFO lifestyle on-site participants commented on as dissatisfying included their roster, unsatisfactory support from employing company, and lack of reliable communication services including internet and phone reception. In addition, participants also identified experiencing stress and fatigue as dissatisfying. As comprehensive measures of stress and fatigue exist (e.g. Lovibond & Lovibond, 1995b) expanding the FOLSS to measure stress and fatigue is not required. However, this finding suggests the FOLSS may complement and contribute additional understanding to measures of stress and fatigue in FIFO

populations. Aspects of the on-site FIFO lifestyle that participants found satisfactory included social aspects, as well as their current position and income.

6.8.2 Future scale development

The FOLSS measures satisfaction with on-site factors within the mining industry, however, there is scope to further develop this scale. Identifying items for the scale ideally would have included qualitative inquiry to discern what people who FIFO feel satisfied and dissatisfied about, rather than drawing this information from existing literature and an existing demographic survey. Due to the design of this project, it was not feasible to undertake interviews at the outset of the project for the development of the scale. Placing these open-ended questions after the presentation of the scale may have influenced participants' responses, however, as participants discussed issues that reflected the scale items as well as produced some suggestions for other potential items, this does not undermine the construct validity but rather provides direction and can inform future scale development.

There are limitations to the scale development as not all the best practice steps (DeVellis, 2016) were followed as described in Chapter 5. The percentage of total variance accounted for is low, at 32%, as usually a 50% level is considered adequate (Tabachnick & Fidell, 2013). This suggests there is low commonality between the indicator variables. In the current scale there is only one item for aspect, for example, one item for a person's job, one item for the site facilities, and so on. This provides further rationale for incorporating more items, in order to provide more than one item per aspect. This may result in a measure that comprises of more than one factor.

As FIFO workers only spend approximately half of their time on-site, there is a need to extend this work to develop a scale to capture satisfaction with FIFO residential home (off-site) factors. In addition, the content analysis of the qualitative questions suggests the potential for adding items relating to commute time and sense of autonomy on-site to the FOLSS. There is also scope to include an item measuring satisfaction with on-site facilities as distinct from accommodation quality. Directions of future research may also include adapting the FOLSS for use in other sectors outside of the mining industry, and also in other countries that utilise transient work schedules. Conducting a larger study to gain normative data as well as measurement invariance across different groups (e.g. gender, length of time working) for this scale would also be useful.

6.9 Handover

In this chapter the development of the FIFO on-site lifestyle satisfaction was described. In the following chapter, I will report on the results of the full survey analysis from Time 1 and

Time 2 that utilised this scale to understand the ability of informal support resources to predict wellbeing for people who FIFO.

Chapter 7 Phase One, Objective 2: Modelling of Support Resources and Mental Health Outcomes

7.1 Pre-start

In this chapter I will describe the results of modelling the impact of support resources on mental health outcomes (refer Figure 7). The support resources include sense of community on and off site, perceived social support, and FIFO on-site lifestyle satisfaction. Alcohol use was also measured to ascertain the impact on mental health outcomes, as measured by depression, anxiety, stress, and satisfaction with life. The model testing aimed to assess the predictive utility of the support resources (sense of community, social support, and FIFO on-site lifestyle satisfaction) and alcohol use for mental health outcomes (satisfaction with life, and depression, anxiety, and stress). The quantitative survey data collection comprised the first time point of the prospective survey of Phase One, and as such the final version of the model described here will be used as the hypothesised model for the data collected at the second time point.

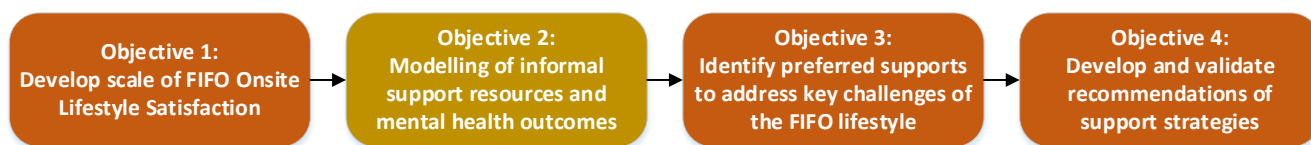


Figure 7. Flow Diagram of Project Objectives Addressing Objective 2

7.2 Theoretical overview of constructs

This study sought to capture the relationship between informal support sources and mental health outcomes. The support resources measured included sense of community, perceived social support, and FIFO on-site lifestyle satisfaction. Alcohol use was also measured as consuming large amounts of alcohol had been identified as problematic within FIFO populations, and suggested to be coping behaviour (Carrington et al., 2011). Mental health outcomes included depression, anxiety, and stress, as well as overall satisfaction with life. In measuring mental health outcomes, it is fundamental to understand mental health as not solely the absence or low levels of poor mental health (depression, anxiety, and stress) but also as comprising wellbeing constructs of mental health.

7.2.1 Sense of community

Sense of community is the overarching value of Community Psychology (Chavis & Newbrough, 1986). This value refers to a perception of belongingness, of being a part of a group or a structure bigger than oneself (Scott & Wolfe, 2014). This is characterised by mutual commitment and interdependence of community members, and the extent to which people feel truly connected to the community (McMillan & Chavis, 1986). The sense of community theory includes the four factors that contribute to sense of community, including membership, integration and fulfilment of needs, reciprocal influence, and shared emotional connection (McMillan & Chavis, 1986). Sense of community provides a support system for members, with a structure to meet their needs, enable empowerment, and offer social connection and engagement (Nowell & Boyd, 2010). As such, sense of community is an important protective factor for wellbeing.

7.2.2 Perceived Social Support

Perceived social support involves a relationship transaction between individuals, and is the perception of support and resources available and received from a person's support network including romantic partners, family members, and friends (Zimet, Dahlem, Zimet, & Farley, 1988). People who are socially integrated, and have supportive and rewarding relationships have been found to experience better mental health and wellbeing, and have shown to have lower rates of morbidity and mortality (Feeney & Collins, 2015). Social support buffers stress, and is a coping resource for people to draw on, when stressful life events occur (Cohen & Wills, 1985).

7.2.3 FIFO On-site lifestyle satisfaction

Engaging in a FIFO schedule leads to employees spending more than half of their time on a usually remote mine site (Misan & Rudnik, 2015). FIFO on-site lifestyle consists of a range of factors that inform how satisfied an individual will be with their experience, and what implications there are for their wellbeing. FIFO on-site lifestyle satisfaction as a construct recognises that working FIFO is more than employment, and takes a new approach to FIFO by conceptualising it as a lifestyle. When measuring FIFO on-site lifestyle satisfaction, multiple aspects of FIFO life are included in order to gauge overall satisfaction with the lifestyle, rather than job satisfaction in isolation. The construct of FIFO on-site lifestyle satisfaction was investigated and a scale was developed as part of this project.

7.2.4 Alcohol use

Regular consumption of alcohol at high levels can indicate an alcohol use disorder (Reinert & Allen, 2007). Alcohol as a substance is a depressant, and has been shown to have

addictive properties (American Psychiatric Association, 2013). Higher rates of alcohol consumption are associated with increased likelihood of experiencing depression and other drug use, and vice versa (Conner, Piquart, & Gamble, 2009). There is also potential for people to experience a decrease in social contact as use of alcohol increases, suggesting higher rates of alcohol use can limit social support received (Peirce, Frone, Russell, Cooper, & Mudar, 2000). However, social support has been found to be useful in decreasing alcohol consumption, particularly in treatment and recovery circumstances (Groh, Jason, Davis, Olson, & Ferrari, 2007). The use of alcohol is associated with lower levels of life satisfaction, as well as anticipated future levels of life satisfaction (Murphy, McDevitt-Murphy, & Barnett, 2005).

7.2.5 Depression, anxiety, and stress

Although understood to be standalone issues, the experience of depression, anxiety, and stress are commonly interconnected (Bayram & Bilgel, 2008; Lovibond & Lovibond, 1995a). Depression is defined in the DSM-5 as experiencing a depressed or low mood for a prolonged period of time, usually two or more weeks at a time (American Psychiatric Association, 2013). The symptomology of depression can include a loss of interest and pleasure in activities that were once enjoyed, increased irritability, sense of worthlessness or hopelessness, increased social withdrawal, weight and appetite changes, sleep disturbances, and potential for suicidal ideation or thoughts of death (American Psychiatric Association, 2013). The experience of depression is commonly associated with anxiety, which involves excessive feelings of fear and worry, due to the anticipation and overestimation of threat to personal safety and wellbeing (American Psychiatric Association, 2013; Beck & Clark, 1997).

To be understood as disordered anxiety, the response to the event or activity is not proportional to the likelihood of threat actually occurring, thus indicating an overestimation and overresponse of anxiety (American Psychiatric Association, 2013). Anxiety at disordered levels is distinguished from normal anxiety responses in that it is perceived as difficult to control and cannot be put off, it is more pronounced, pervasive and distressing, and is considered to be excessive to the point that it interferes with everyday functioning (Handley, Egan, Kane, & Rees, 2014). Disordered anxiety can be focused on specific objects or situations, or can be experienced in relation to worrying about every day and routine life events or situations. People experiencing heightened anxiety levels are likely to feel restless, become easily fatigued or irritable, and have difficulty concentrating (American Psychiatric Association, 2013).

A similar yet distinct experience is that of stress (Crawford & Henry, 2003). Stress, like anxiety, is experienced in response to an event or situation that is perceived as a threat, however stress is considered to be a product of an evaluation between the demands or threat

presented and how well the person considers they can cope with the demands or threat perceived (Cooper & Baglioni, 2013). The intensity of stress is contingent on the degree of the perceived threat or demands, and how proportional the available resources that will assist in coping with the situation are considered to be (Cooper & Baglioni, 2013).

The potential for overlap with depression, anxiety, and stress have been acknowledged through research and clinical practice (American Psychiatric Association, 2013; Lovibond & Lovibond, 1995a; Michl, McLaughlin, Shepherd, & Nolen-Hoeksema, 2013). The experience of stress, and stressful life events, act as predictors of anxiety and depression, linked through responses to stress such as increased rumination (Michl et al., 2013). Negative cognitive factors are also thought to emerge during stressful life events, and this is linked to the onset of depression and anxiety, where negative thinking patterns that occur during a stressful experience increase the likelihood of depression or anxiety (Scher, Ingram, & Segal, 2005). As such, a person who is diagnosed with generalised anxiety can often experience symptoms of depression, and a person diagnosed with depression may also experience symptoms of anxiety (American Psychiatric Association, 2013; Kaufman, 2000).

7.2.6 Life satisfaction

Life satisfaction is a core component of happiness, and is often used as a measure of subjective wellbeing (Erdogan et al., 2012; Pavot & Diener, 2008). Satisfaction with life is the cognitive assessment or judgement of how satisfied a person is with their life overall (Diener et al., 1985). Life satisfaction has been associated with an array of beneficial outcomes, including reduced mortality, lower levels of burnout, fewer sleep complaints, and overall higher levels of health and wellbeing (Erdogan et al., 2012).

7.3 Modelling of informal support resources and mental health outcomes (Time 1)

Analysis at Time 1 sought to answer the research question *Does sense of community in relation to home and mine site contexts, perceived social support, FIFO on-site lifestyle satisfaction, and alcohol use predict mental health outcomes (depression, anxiety, and stress, and satisfaction with life) for people who FIFO?* The hypothesis addressing this research question is:

Hypothesis 1: *Informal supports of sense of community (at home and on-site), social support, and FIFO on-site lifestyle satisfaction, and alcohol use, are significant predictors of mental health outcomes (Depression, Anxiety and Stress, and Satisfaction with Life) at Time 1.*

Each component of the hypothesised model (see Figure 8) was included on the basis of theoretical approach and literature review for this study, as detailed in section 7.2 above. The exploration of informal support sources to minimise mental health issues within a FIFO population is a new and seminal area, and as such statistical evidence to inform this model is limited. However, the findings within FIFO related research suggest that the support from informal resources are of paramount importance, and so this model aims to examine this. The model identifies sense of community at home and on the mine site, perceived social support, FIFO on-site lifestyle satisfaction, and alcohol use to be predictors of mental health outcomes. It was predicted that the higher levels of sense of community, perceived social support, and FIFO on-site lifestyle satisfaction will decrease levels of depression, anxiety, and stress, and increase levels of satisfaction with life.

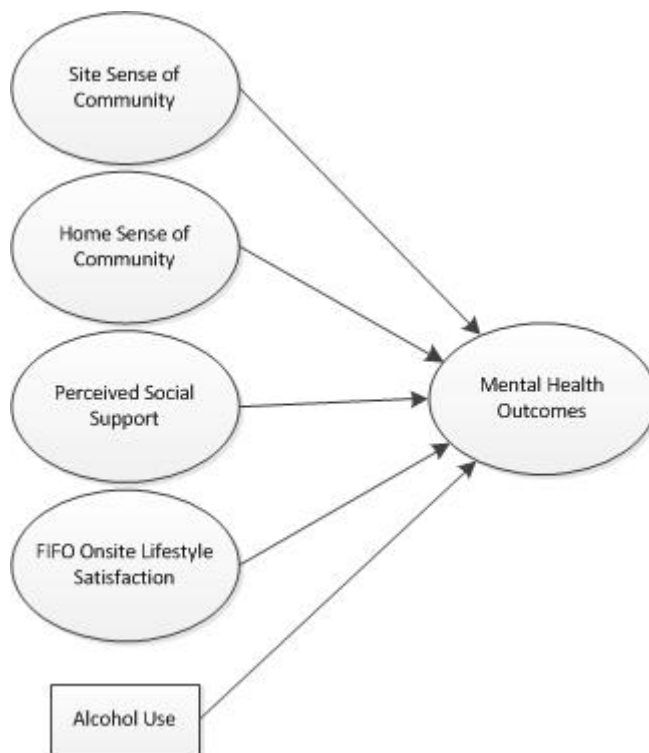


Figure 8. Hypothesised Model of Support Sources and Alcohol Use as Predictors of Mental Health Outcomes

7.3.1 Results

7.3.1.1 Preliminary testing

Visual inspection of histograms indicated the scales were mostly normally distributed. The DASS-21 total and subscales were positively skewed, however, this was expected due to higher ratings on the DASS-21 being indicative of disorder level disturbances in depression, anxiety, and stress as observed in comparisons of clinical and community samples (Antony, Bieling, Cox, Enns, & Swinson, 1998).

7.3.1.2 Confirmatory factor analysis of model scales

Before testing the measurement model overall, each construct within the model was analysed separately using confirmatory factor analysis (CFA). This was done as the selected scales had not been commonly used with a FIFO sample. As the AUDIT is a screening tool and had been used with a FIFO sample recently (for example, Tynan et al., 2017), the AUDIT was not subjected to confirmatory factor analysis. Each scale showed good psychometric properties, and goodness of fit (Table 9). The Multidimensional Scale of Perceived Social Support fit statistics indicated the RMSEA was violated, however, this fit index is highly sensitive to sample size. The CFA model for Satisfaction with Life scale is presented in Figure 9, Multidimensional Scale of Perceived Social Support in Figure 10, Brief Sense of Community Scale for Home and Site locations in Figure 11 and Figure 12 respectively, and the short version of the Depression Anxiety Stress Scale is presented in Figure 13. Confirmatory factory analysis fit statistics for the FIFO On-site Lifestyle Satisfaction Scale are reported in Chapter 6.

Table 9.
Confirmatory Factor Analysis Fit Statistics of Model Scales

	df	χ^2/df	RMSEA	CFI	NNFI (TLI)	SRMR
SWLS	5	3.01	.07	.99	.99	.02
MSPSS	51	6.23	.12	.94	.92	.05
DASS	186	3.47	.08	.91	.89	.05
BSCS (site)	14	1.75	.04	.99	.99	.02
BSCS (home)	14	2.69	.06	.99	.98	.02
			<.08	≥.9	≥.9	≤.08
Indications of model fit			(Chen et al., 2008)	(Hu & Bentler, 1999)	(Hu & Bentler, 1999)	(Hu & Bentler, 1999)

Note: MSPSS = Multidimensional Scale of Perceived Social Support; BSCS = Brief Sense of Community Scale; DASS-21 = Depression Anxiety Stress Scale (short version); AUDIT = Alcohol Use Disorder Identification Tool; SWLS = Satisfaction With Life Scale.

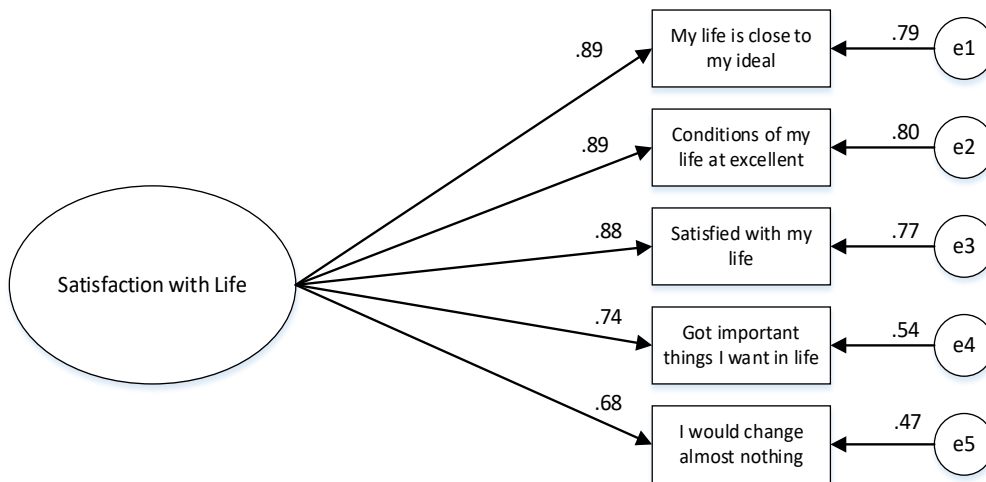


Figure 9. Confirmatory Factor Analysis Factor Loadings of the Five Item Satisfaction with Life Scale (SWLS)

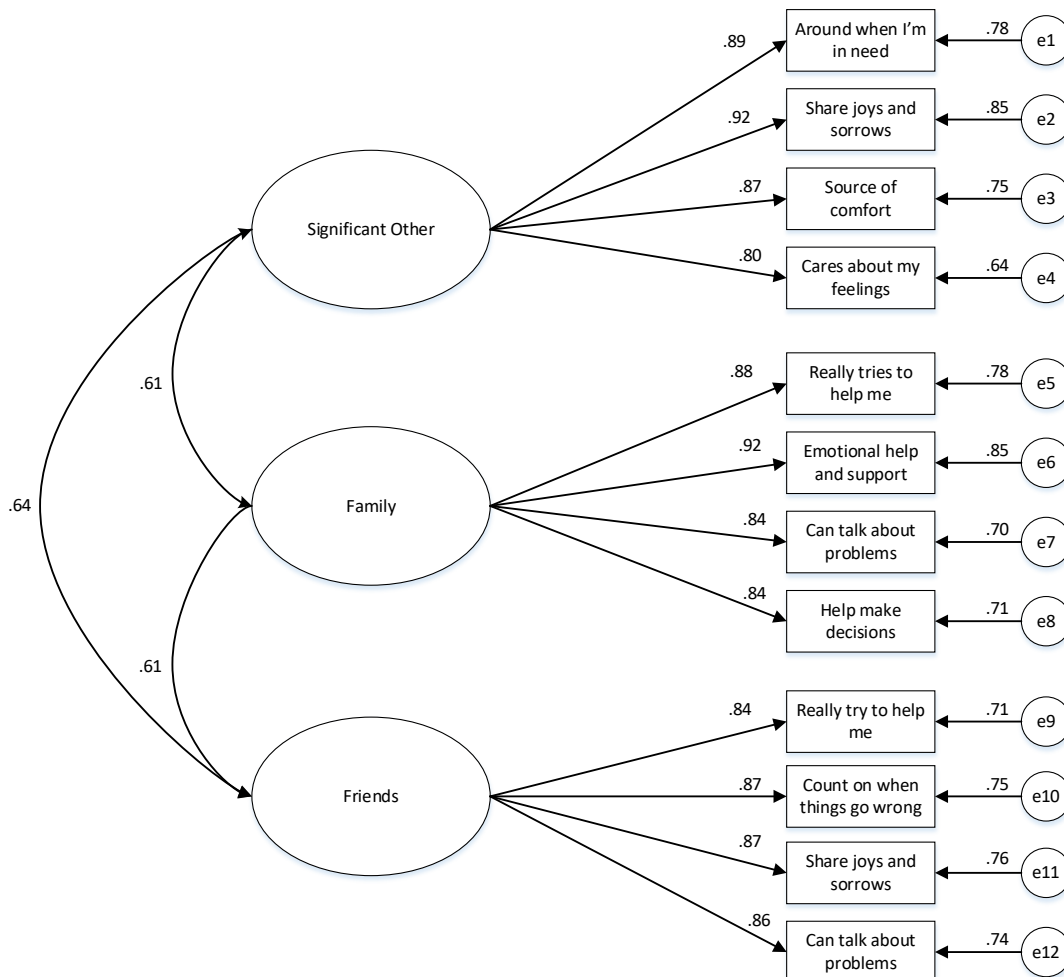


Figure 10. Confirmatory Factor Analysis Factor Loadings of the Twelve Item Multidimensional Scale of Perceived Social Support (MSPSS)

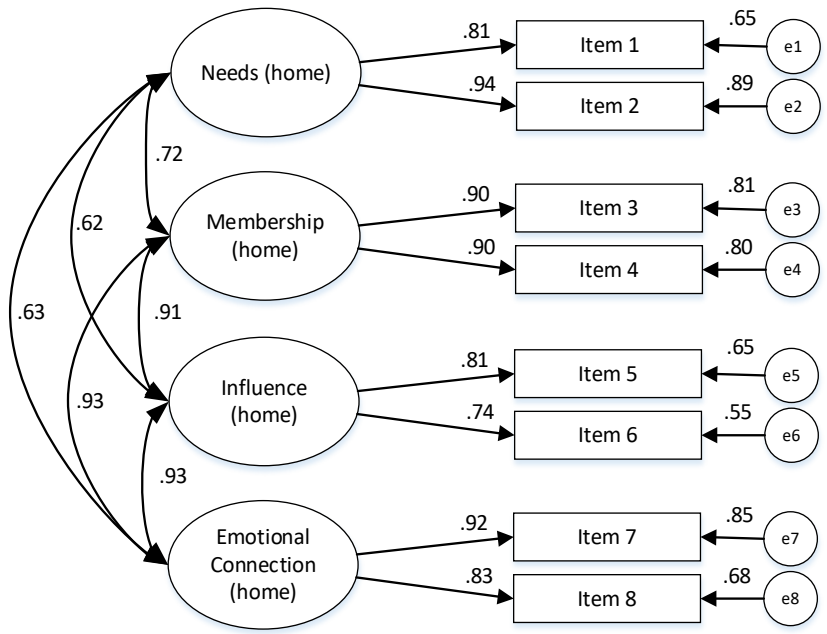


Figure 11. Confirmatory Factor Analysis Factor Loadings of the Eight Item Brief Sense of Community Scale (BSCS) for Home Community

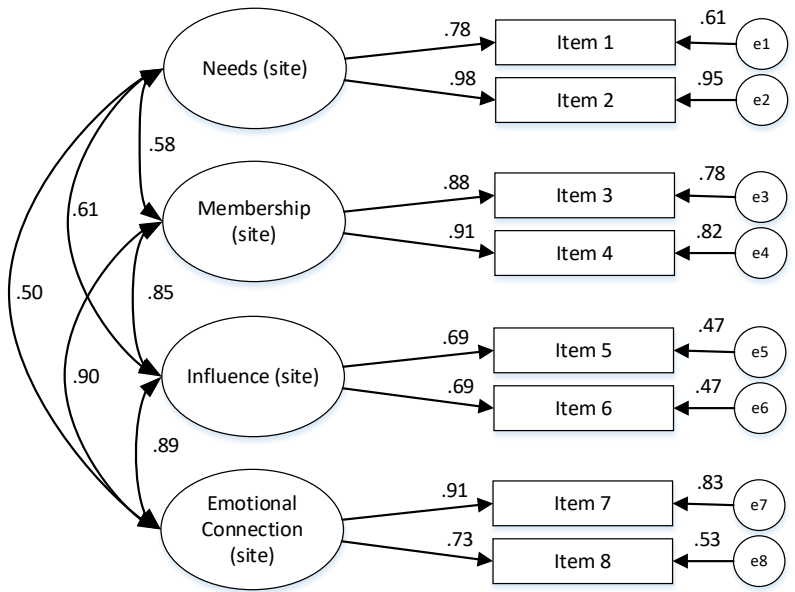


Figure 12. Confirmatory Factor Analysis Factor Loadings of the Eight Item Brief Sense of Community Scale (BSCS) for On-site Community

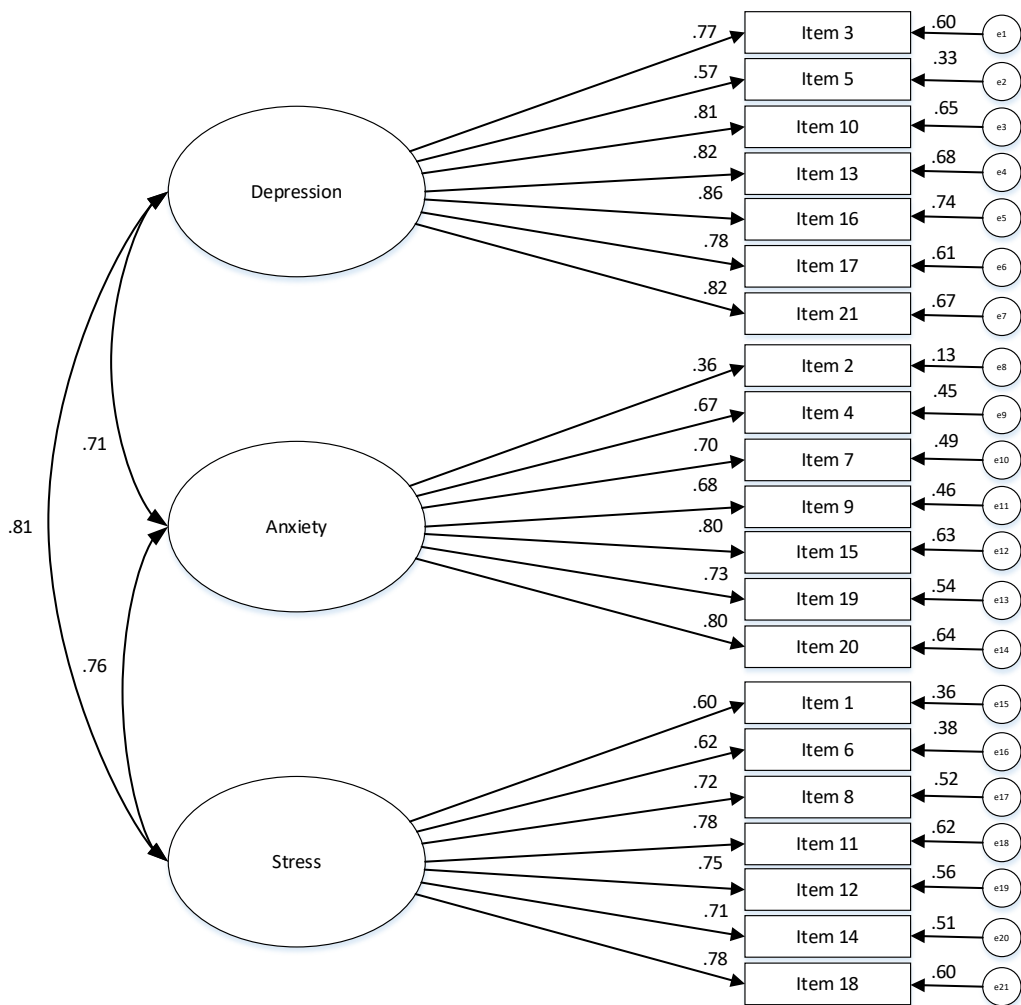


Figure 13. Confirmatory Factor Analysis Factor Loadings of the Depression Anxiety Stress Scale (Short form; DASS-21)

7.3.1.3 Descriptive statistics and correlation matrix

Means, standard deviations and Cronbach's alpha were calculated for scales used in the model, and are displayed in Table 10. All scales demonstrated good internal reliability. Examination of bivariate relationships presented contain several points of interest. Firstly, FIFO on-site lifestyle satisfaction is positively associated with perceived social support, sense of community on-site (and at home to a lesser extent), and overall satisfaction with life, and had the strongest negative relationship with the DASS-21 measure. Sense of community on-site was more strongly associated with depression, anxiety and stress than sense of community at home. Site sense of community was also more strongly correlated with overall satisfaction with life and perceived social support than home sense of community. However, the mean total score for the sense of community measure was higher for the home location, compared to the site location. Perceived social support was negatively associated with depression, anxiety and stress.

Table 10.

Correlation Matrix of Model Scales with Scale Alphas on the Diagonal

	Scale	Descriptives		1	2	3	4	5	6	7
		<i>M</i>	<i>SD</i>							
1	FOLSS	25.40	4.74	$\alpha=.80$						
2	MSPSS	61.61	14.07	.448**	$\alpha=.94$					
3	BSCS Site	25.11	6.26	.667**	.404**	$\alpha=.89$				
4	BSCS Home	26.89	6.13	.236**	.247**	.279**	$\alpha=.92$			
5	DASS-21	10.87	10.55	-.440**	-.370**	-.321*	-.197**	$\alpha=.94$		
6	AUDIT	7.19	5.70	-.102*	-.094	-.083	-.090	.238**	$\alpha=.84$	
7	SWLS	2.86	6.90	.591**	.533**	.461**	.157**	-.509**	-.091	$\alpha=.91$

Note: FOLSS = FIFO On-site Lifestyle Satisfaction Scale; MSPSS = Multidimensional Scale of Perceived Social Support; BSCS = Brief Sense of Community Scale; DASS-21 = Depression Anxiety Stress Scale (short version); AUDIT = Alcohol Use Disorder Identification Tool; SWLS = Satisfaction With Life Scale

7.3.1.4 Normative Data

Statistics for the Brief Sense of Community Scale, Multidimensional Scale of Perceived Social Support, and Satisfaction with Life Scale in this study are given context through comparison to findings from general population studies (see Table 11). Further comparative data for the DASS-21 and AUDIT, as well as percentages of the current study sample that scored within each clinical range are included in Table 12 and Table 13 respectively.

Table 11.

Comparison of Perceived Social Support, Sense of Community at Home, and Overall Satisfaction with Life

Reference	Study Comparison		MSPSS		BSCS Home		SWLS	
	Population	<i>N</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Study Sample	Australian FIFO workers	<i>N</i> =391	61.61	14.07	26.89	6.13	22.86	6.90
Nicholson, Brown, and Hoye (2014)	Australian adults	<i>N</i> =1833	67.32**	14.52				
Mamonov, Koufaris, and Benbunan-Fich (2016)	American adults	<i>N</i> =506			30.56**	10.08		
Gannon and Ranzijn (2005)	Australian adults	<i>N</i> =191					24.87**	5.96
Kutek, Turnbull, and Fairweather-Schmidt (2011)	Australian rural adult men	<i>N</i> =185	64.44 [#]	12.96			24.89**	6.43

Note: MSPSS = Multidimensional Scale of Perceived Social Support; BSCS = Brief Sense of Community Scale; SWLS = Satisfaction With Life Scale.

Statistically significant difference from study sample ** $p < .001$ [#] $p < .05$

The comparison of social support, sense of community at home, and satisfaction with life levels identified within the study sample compared to general population studies highlighted differences between people who FIFO and those who do not. The participant sample of FIFO workers in this study reflected lower perceived social support in comparison to other studies. The current sample also reflected lower satisfaction with life in comparison to other studies.

Table 12.

Depression, Anxiety, Stress Scale Comparative Data and Clinical Ranges

	<u>Descriptives</u>		<u>Clinical Classifications % of Sample</u>				
	<i>M</i>	<i>SD</i>	Normal	Mild	Moderate	Severe	Very severe
<u>Study sample, N=391</u>							
Total ¹	21.74	21.01					
Depression	7.44	8.94	70.33%	10.23%	10.49%	3.32%	5.63%
Anxiety	4.46	6.34	79.03%	5.63%	8.44%	2.30%	4.60%
Stress	9.84	8.42	78.26%	7.16%	9.21%	3.84%	1.53%
<u>Australian FIFO sample (Vojnovic & Bahn, 2015) N=628</u>							
Total ¹	26.27**	26.60					
Depression	9.40**	9.92	60.35%	11.31%	13.69%	6.05%	8.60%
Anxiety	5.77*	7.09	70.06%	7.64%	10.99%	4.62%	6.69%
Stress	11.10 [#]	9.59	70.70%	9.87%	8.76%	7.32%	3.34%
<u>UK general population sample (Crawford & Henry, 2003) N=1771</u>							
Total ¹	18.38**	18.82					
Depression	5.55**	7.48	81.7%	6.2%	6.3%	2.9%	2.9%
Anxiety	3.56*	5.39	94.4%	2.0%	3.8%	2.0%	3.2%
Stress	9.27	8.04	80.2%	8.4%	5.9%	3.5%	2.0%
<u>Australian general population sample (Crawford, Cayley, Lovibond, Wilson, & Hartley, 2011) N=497</u>							
Total	16.48**	19.24					
Depression	5.02**	7.54					
Anxiety	3.36*	5.07					
Stress	8.10*	8.40					

¹Note: DASS-21 = Depression Anxiety Stress Scale (short version). Total and sub-scale scores are multiplied by 2 in order for comparison to clinical ranges.

Statistically significant difference from study sample **p<.001 *p<.01 #p<.05

Comparison of findings for the current study to another FIFO sample indicated that the current study scores were lower than those previously found in a FIFO population (Vojnovic & Bahn, 2015). This may suggest that the scores in this sample are not reflective of the severity of these issues in the population. In addition, although the depression, anxiety, and stress scores in this project were lower than a previous FIFO sample, they were higher than scores reported in general population studies. This is reflected in the proportions of the sample within the clinical ranges where people who FIFO (both in the current study as well as Vojnovic & Bahn, 2015) are observed to experience greater rates of depression anxiety and stress in the

mild, moderate, and severe classifications of these issues in comparison to levels found in a general population study (refer Table 12). Comparison of AUDIT scores indicated that rates of risky or hazardous drinking were not higher than those found in a global population study (refer Table 13). However, the scores identified in the current study sample were lower than those found in another Australian FIFO sample, and higher when compared to an Australian norm group (Parker et al., 2018). The average AUDIT score and clinical ranges presented in an alcohol dependent clinical sample indicates that people who FIFO are as a population not demonstrating drinking at a level comparable to dependence.

Table 13.

Alcohol Use Disorder Identification Test Comparative Data and Clinical Ranges

AUDIT Study	N	M	SD	Zone 1	Zone 2	Zone 3	Zone 4
Study sample	N=391	7.19	5.70	63.94%	24.81%	6.39%	4.86%
Global general sample (Garnett et al., 2015)	N=9820	10.50**	6.2	36.8%	43.4%	10.8%	9.0%
Clinical Sample with alcohol dependence (Donovan, Kivlahan, Doyle, Longabaugh, & Greenfield, 2006)	N=1335	25.89**	6.06	0%	4.50%	10.56%	84.94%
Australian FIFO sample (Parker et al., 2018)	N=3108	9.05**	6.98				
Norm group (Parker et al., 2018)	N=326	5.83**	5.63				

Note: AUDIT = Alcohol Use Disorder Identification Test, all studies used same version (Babor et al., 2001); Zone 1 = No known risk, score 0-7; Zone 2 = Risky or hazardous, score 8-14; Zone 3 = High risk or harmful, score 15-18; Zone 4 = High risk and dependence likely, 19-40.

Statistically significant difference from study sample **p<.001

7.3.1.5 Model Testing

The hypothesised model was tested using AMOS (v.22). The hypothesised model (Model 1) is presented in Figure 14, and model fit statistics for this and all further models tested are presented in Table 14. A range of fit statistics were included in order to evaluate the model on multiple fit criteria, including absolute fit and comparative fit indices. In reviewing the model fit criteria in terms of their optimal values the hypothesised model was determined to reflect an ill-fitting model, and thus it was apparent that modification in specification was needed in order to identify a model that better represented the sample data. To identify areas of misfit, the modification indices were examined and theoretical justification for change considered. A summary of changes made in each iteration of model testing following

examination of modification indices are summarised in Table 15 and presented below. Each of these changes are described, before the final model is presented in Figure 15.

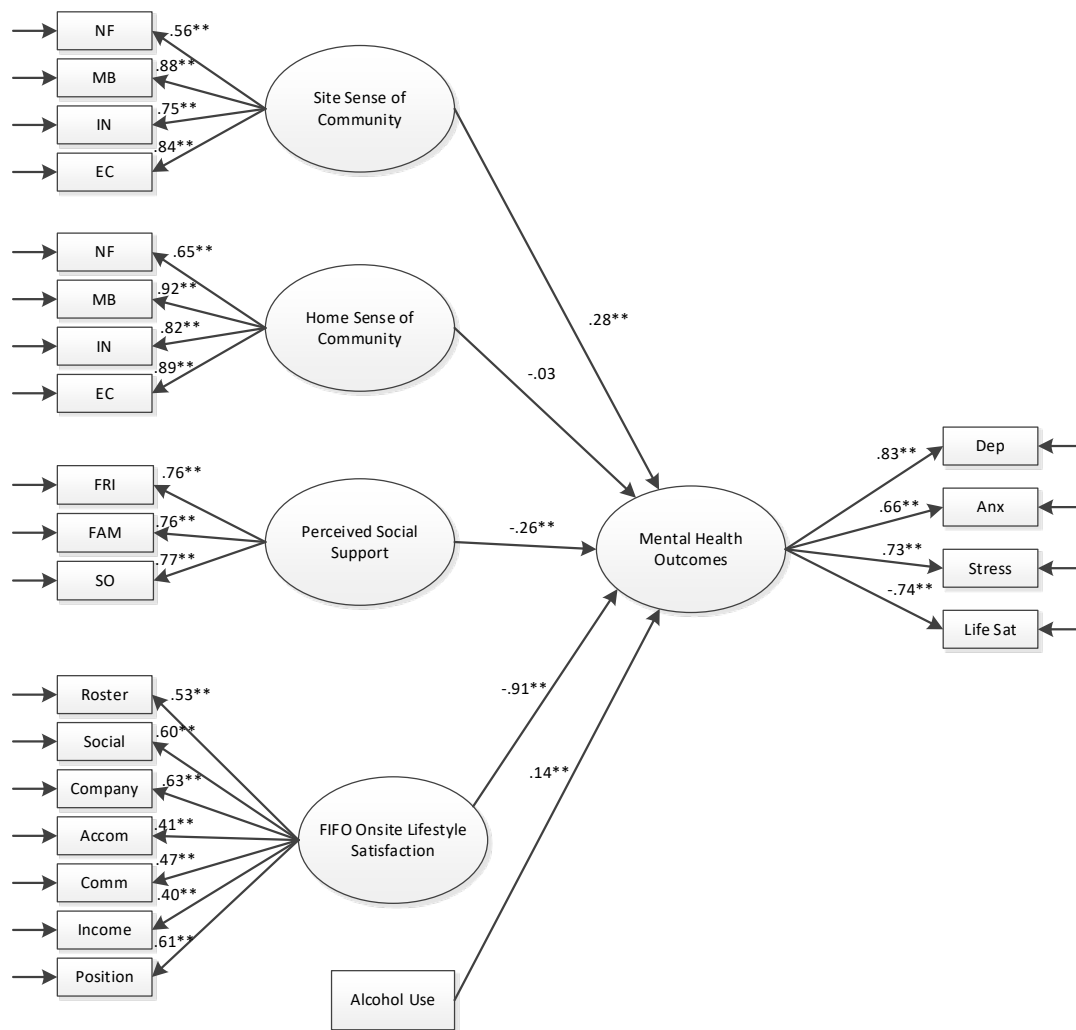


Figure 14. Hypothesised Model (Model 1) with Factor Loadings and Path Coefficients

Table 14.
Fit Statistics for Models

	df	χ^2/df	RMSEA	CFI	GFI	NNFI (TLI)	sRMR
Model 1	226	4.532	.095	.814	.805	.792	.197
Model 2	149	5.826	.111	.777	.808	.744	.214
Model 3	148	5.442	.107	.796	.833	.764	.196
Model 4	148	4.095	.089	.858	.860	.836	.090
Model 5	147	3.919	.087	.867	.869	.845	.084
Model 6	85	4.339	.093	.900	.891	.876	.087
Indications of model fit			<.08	≥.9	≥.9	≥.9	≤.08
			(Chen et al., 2008)	(Hu & Bentler, 1999)	(Hooper et al., 2008)	(Hu & Bentler, 1999)	(Hu & Bentler, 1999)

Note: df= Degrees of freedom; χ^2/df = Chi-square divided by df; RMSEA= Root mean square error of approximation; CFI= Comparative fit index; GFI= Goodness of fit index; NNFI= Non-normed fit index; sRMR= Standardised root mean square residual.

As presented in Table 14 the final structural model yielded reasonable fit statistics that neared good fit levels, however was not considered to be an ideal fit to the sample data (Hu & Bentler, 1999; Tabachnick & Fidell, 2013). The CFI statistic indicated good fit, however, other fit statistics were not met. Evaluating goodness of fit statistics must be done with the knowledge that there are no absolute fit statistics that are robust to all conditions (Hooper et al., 2008). The RMSEA, for example, is particularly sensitive to sample size (Chen et al., 2008).

Table 15.

Description of Model Misspecification Changes

Model	Changes
Model 1	Hypothesised model
Model 2	Home Sense of Community Variable removed
Model 3	Covariance added between SSOC and PSS (still pathway from SSOC to MHO)
Model 4	Pathway from SSOC to FOLS, SSOC to MHO removed
Model 5	Pathway from PSS to FOLS (indirect effect)
Model 6	Parcels for FOLS to minimise DF

Model 1 examination. The estimates of the model indicated the Home Sense of Community → Mental Health Outcomes pathway was not significant. Modification indices did not indicate substantive changes if this variable was removed, and so the Home Sense of Community variable was removed for Model 2, and rerun.

Model 2 examination. The model fit indices for Model 2 suggests that following the removal of Home Sense of Community the model was still ill-fitting. Modification indices were examined, and indicated adding a Site Sense of Community ↔ Perceived Social Support covariance would improve model fit. This made theoretical sense, given the interrelationships of these variables. This was included for Model 3, and the model rerun.

Model 3 examination. Inspection of the model fit statistics for Model 3 indicated the model still reflected a poor fit for the sample data. Modification indices and model estimates were examined. The Site Sense of Community → Mental Health Outcomes pathway was not significant and was therefore removed for Model 4. Modification indices informed the addition of a pathway Site Sense of Community → FIFO On-site Lifestyle Satisfaction, meaning there was an indirect effect of Site Sense of Community on Mental Health Outcomes. This made theoretical sense, and so this pathway was included for Model 4 and the model rerun.

Model 4 examination. The model fit statistics for Model 4 indicated a better fitting model, however, modification indices proposed a pathway from Perceived Social Support → FIFO On-site Lifestyle Satisfaction. It made theoretical sense that the effects of Perceived Social Support on Mental Health Outcomes may be direct and indirect through FIFO On-site Lifestyle Satisfaction. This pathway was included for Model 5 and the model rerun.

Model 5 examination. The addition of the pathway Perceived Social Support → FIFO On-site Lifestyle Satisfaction resulted in reasonable model fit. The number of free parameters and the sample size were considered for adjustment in Model 6.

Model 6 examination. The use of parcelling was incorporated for the FOLS items for Model 6, as this would reduce the number of free parameters and increase the power of the analysis. The model fit statistics indicated this was the model with best fit (refer Figure 15). Model modifications ceased as no further theoretically reasonable changes were suggested by modification indices.

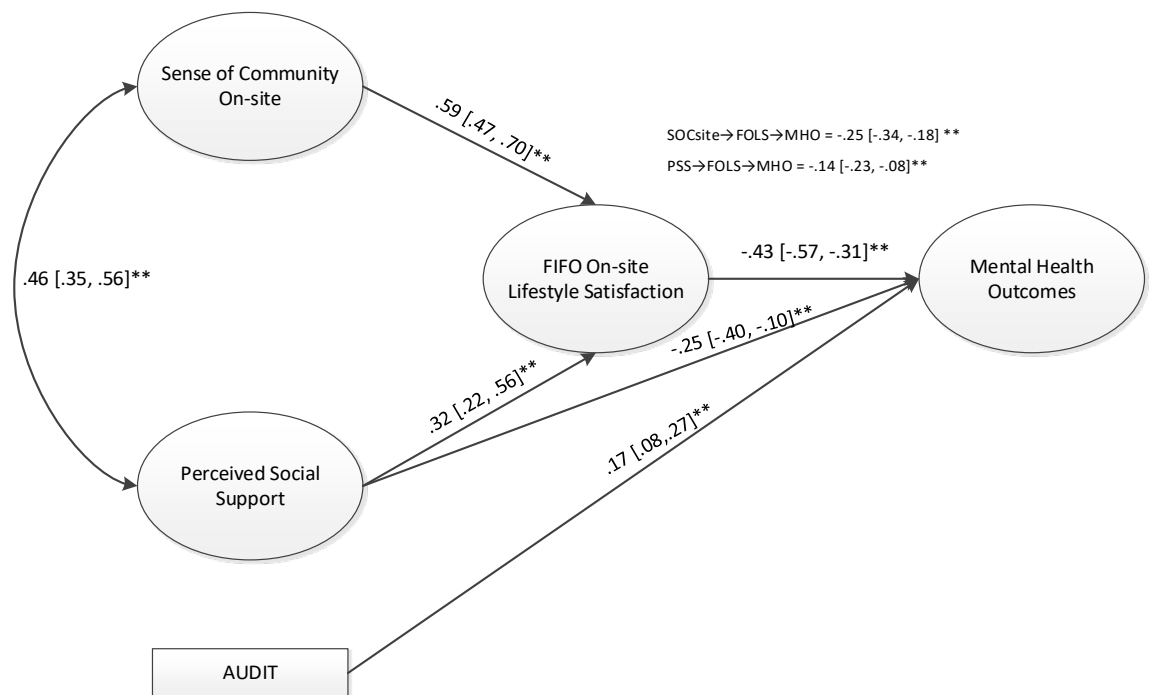


Figure 15. Structural Model (Model 6) with standardised path coefficients, 95% confidence intervals [lower, upper]

**sig at .001 level

After examining the structural model path coefficients, the variance explained was also examined. For the endogenous variables of FIFO on-site lifestyle satisfaction, and mental health outcomes, the predictors explained a substantial amount of variance, as presented in Table 16. The combined contributions of predictors accounted for 40.90% of the variance in mental health outcomes.

Table 16.
Effect Sizes for Model Outcome Variables

Endogenous variable	Predictors	Variance explained
Mental health outcomes	FOLS, PSS	40.90%
FIFO on-site lifestyle satisfaction	PSS, SOC site	62.10%

Note: FOLS= FIFO on-site lifestyle satisfaction; PSS= Perceived social support; SOC site= Sense of community (site location).

7.3.2 Discussion Time 1

The aim of Time 1 analysis was to address Objective 2, and answer the research question *Does Sense of community in relation to home and mine site contexts, perceived social support, FIFO on-site lifestyle satisfaction, and alcohol use predict mental health outcomes (depression, anxiety, and stress, and satisfaction with life) for people who FIFO?* As outlined here, the final model developed is meaningful in understanding the associations between sense of community, social support, and FIFO on-site lifestyle satisfaction and the experience of mental health outcomes. The findings support the hypothesis that higher levels of informal support predict lower levels of depression, anxiety, and stress, and also predict higher levels of life satisfaction. This gives strength to the argument that informal social and community support is important and influential on the experience of working FIFO, as perceived social support, site sense of community and FIFO on-site lifestyle satisfaction accounted for approximately 40% of the variance in mental health outcomes. Through promotion and cultivation of these areas of support there is the opportunity to improve the experience of working FIFO and reduce the risk of people who work FIFO experiencing negative mental health outcomes such as depression, anxiety, and stress. As the health and wellbeing of people who FIFO has been identified as an urgent and important issue (Education and Health Standing Committee, 2015; Vojnovic, 2016), this finding is useful in directing initiatives and messaging around mental health promotion to better support people who FIFO (Weeramanthri & Jancey, 2013).

The components of mental health outcomes measured here included levels of depression, anxiety, and stress, and overall satisfaction with life. Previously, the literature pertaining to the mental health of people who FIFO has focused on assessing the negative experiences and issues associated with FIFO (Henry et al., 2013; Tynan et al., 2016; Vojnovic, 2016; Vojnovic & Bahn, 2015), and has not included measures of wellbeing. The findings here give broader insight into the FIFO experience by examining multiple components of subjective wellbeing (Diener, 2000). The comparison of findings from this study to other study findings gives support to the argument that people who FIFO are seen to have greater rates of

depression, anxiety, and stress than people in a general population (Crawford & Henry, 2003; Vojnovic & Bahn, 2015). This is illustrated by a lower percentage of people in FIFO study samples represented in the normal or mild clinical ranges for the DASS criteria than those in a general population, and higher percentages of people in FIFO study samples represented in the mild, moderate, severe, and very severe classifications when compared to a general population (Crawford & Henry, 2003; Vojnovic & Bahn, 2015). McPhedran and De Leo (2013) suggested that living FIFO is associated with particular risk factors, which in turn increase the likelihood of experiencing depression, anxiety, and stress. The findings from this study add support to this claim, and give further insight by examining the life satisfaction construct. Comparison of findings in the current study indicated that the mean level of overall satisfaction with life for people who FIFO is lower than those of an Australian adult sample, a Spanish adult sample, and a sample of men living in rural Australia (Gannon & Ranzijn, 2005; Kutek et al., 2011; Vázquez, Duque, & Hervás, 2013). In summary, these comparisons indicate that people who participate in a FIFO lifestyle have on average greater self-reported depression, anxiety, and stress issues, and lower overall satisfaction with life than the general population.

The pattern of mental health outcomes identified in this study is strongly linked to living FIFO, observed through the strength of relationships between FIFO on-site lifestyle satisfaction and satisfaction with life, sense of community, perceived social support, and the strong negative relationship with the DASS components of depression, anxiety, and stress. This indicates that the circumstances of the FIFO lifestyle are important for the wellbeing of workers. A model where social support and site sense of community account for 62.1% of the variance in FIFO on-site lifestyle satisfaction suggests that the importance of on-site life for FIFO workers has been drastically underestimated in previous research, being limited to noting the culture on-site and the built environment of the accommodation camps as being influential (Coghill & Blackmore, 2014; Perring et al., 2014; Weeramanthri & Jancey, 2013). In addition, the modelling of these relationships suggests that levels of sense of community on-site, as well as levels of perceived social support, contribute to the experience of on-site lifestyle. The dynamic represented here highlights the importance of a range of support resources, FIFO specific lifestyle factors, and social support mechanisms in order to bolster wellbeing for people who FIFO.

A harmful drinking culture has been noted to be a main concern pertaining to people who FIFO (Ennis & Finlayson, 2015). The findings from this study indicate that drinking levels within the AUDIT risk zones (refer Table 13) for people who FIFO are similar to those of a general population, and significantly lower than for those considered to be alcohol dependent (Donovan, Kivlahan, et al., 2006; Garnett et al., 2015). The rates of harmful drinking in this

study were similar to those reported for samples of Australian residents and partially FIFO coal mine workers (Tynan et al., 2017). In conflict with previous research in this area (e.g. Carrington et al., 2010; Conner et al., 2009), the use of alcohol was not found to be a strong predictor of mental health outcomes in this study. There are several possible explanations for the differing findings. First, potentially there have been changes made in regards to the way alcohol has been consumed on-site with alcohol management plans (Usher et al., 2017). Second, it is possible that the participants involved in this study were not part of the drinking culture identified as particularly prevalent in the FIFO lifestyle (Gilmore et al., 2015).

Of particular interest in this study was the finding that sense of community at home was not found to explain unique variance in predicting mental health outcomes. The zero order correlations indicated that sense of community at home was negatively associated with depression, anxiety, and stress, and positively associated overall satisfaction with life. This highlights an area for further investigation, as this suggests a possible shift in the drawing of support from the home community to an extent that it is not the primary source that provides the benefits and resources for FIFO workers (Cicogani, Pietrantonio, Palestini, & Prati, 2009; McMillan & Chavis, 1986). This provides a new perspective, as much of FIFO research has posited the home community to be responsible for supplying the supports for people who FIFO (Education and Health Standing Committee, 2015; Henry et al., 2013). This adds to the understanding of the FIFO lifestyle and where support is being gained. The results from this model suggest that the sense of community experienced on the work site is more important than sense of community at home in reducing depression, anxiety, and stress, and increasing overall satisfaction with life for workers who FIFO. This indicates the need for the provision of support options that develop sense of community at on-site locations. Further, this suggests that relationship connections on-site are valuable to promoting wellbeing.

7.3.2.1 Limitations

The study here utilises cross-sectional data, and further assessment of the model after an interval is needed in order to more fully explore sense of community, FIFO on-site lifestyle satisfaction, and perceived social support to predict mental health outcomes. To address this, Time 2 prospective data and follow up analyses will focus on the fit of the model at an additional time point, and the ability of sense of community, FIFO on-site lifestyle satisfaction, and perceived social support to predict mental health outcomes.

7.4 Modelling of informal support resources and mental health outcomes (Time 1 and 2 comparison)

The follow up survey data aimed to assess the fit of the model at an additional time point and investigate the ability of sense of community, FIFO on-site lifestyle satisfaction, and perceived social support to predict satisfaction with life and depression, anxiety and stress. As such, Time 2 analysis sought to address the research question *Does the model developed at Time 1 provide good fit to the data at Time 2?* As such, the follow up analysis for Time 2 aimed to test the following hypothesis:

Hypothesis 1: *There will be an indirect effect of sense of community (on-site) on mental health outcomes (Depression, Anxiety and Stress, and Satisfaction with Life) through FIFO on-site lifestyle satisfaction.*

Hypothesis 2: *There will be a direct effect of social support on mental health outcomes (Depression, Anxiety and Stress, and Satisfaction with Life), and an indirect effect through FIFO on-site lifestyle satisfaction.*

Hypothesis 3: *The AUDIT will be a significant direct predictor of mental health outcomes (Depression, Anxiety and Stress, and Satisfaction with Life).*

7.4.1 Correlation matrix and descriptive statistics

Correlations between variables and scale reliability alpha levels for each scale for Time 2 are presented in Table 17. Some consistent patterns were observed in comparison to Time 1, with strong negative relationships between perceived social support as well as FIFO on-site lifestyle satisfaction with depression, anxiety, and stress. Perceived social support and FIFO on-site lifestyle satisfaction also had strong positive relationships with satisfaction with life. Interestingly, sense of community on-site did not have a statistically significant relationship with depression, anxiety and stress, but had a medium positive correlation with satisfaction with life.

Table 17.
Correlation Matrix (N=92)

Variable	Descriptives			1	2	3	4	5	6	7
	M	Possible Range	SD							
1 FOLSS	25.51	7-35	4.42	$\alpha=.74$						
2 MSPSS	61.05	12-84	14.42	.398**	$\alpha=.94$					
3 BSCS Site	24.98	8-40	4.93	.541**	.315**	$\alpha=.84$				
4 BSCS Home	26.51	8-40	5.24	.112	.178	.283**	$\alpha=.89$			
5 DASS-21	10.09	0-63	9.23	-.363**	-.465**	-.172	-.122	$\alpha=.93$		
6 AUDIT	6.78	0-40	5.33	-.062	-.185	.011	-.170	.297**	$\alpha=.84$	
7 SWLS	22.78	5-35	6.33	.399**	.585**	.295**	.168	-.540**	-.212*	$\alpha=.88$

Note: **sig at .01 level; *sig at .05 level

FOLSS = FIFO On-site Lifestyle Satisfaction Scale; MSPSS = Multidimensional Scale of Perceived Social Support; BSCS = Brief Sense of Community Scale; DASS-21 = Depression Anxiety Stress Scale (short version); AUDIT = Alcohol Use Disorder Identification Tool; SWLS = Satisfaction With Life Scale

7.4.2 Model Testing

For the follow up analysis, the final model developed from Time 1 became the hypothesised model for Time 2 (refer Figure 16).

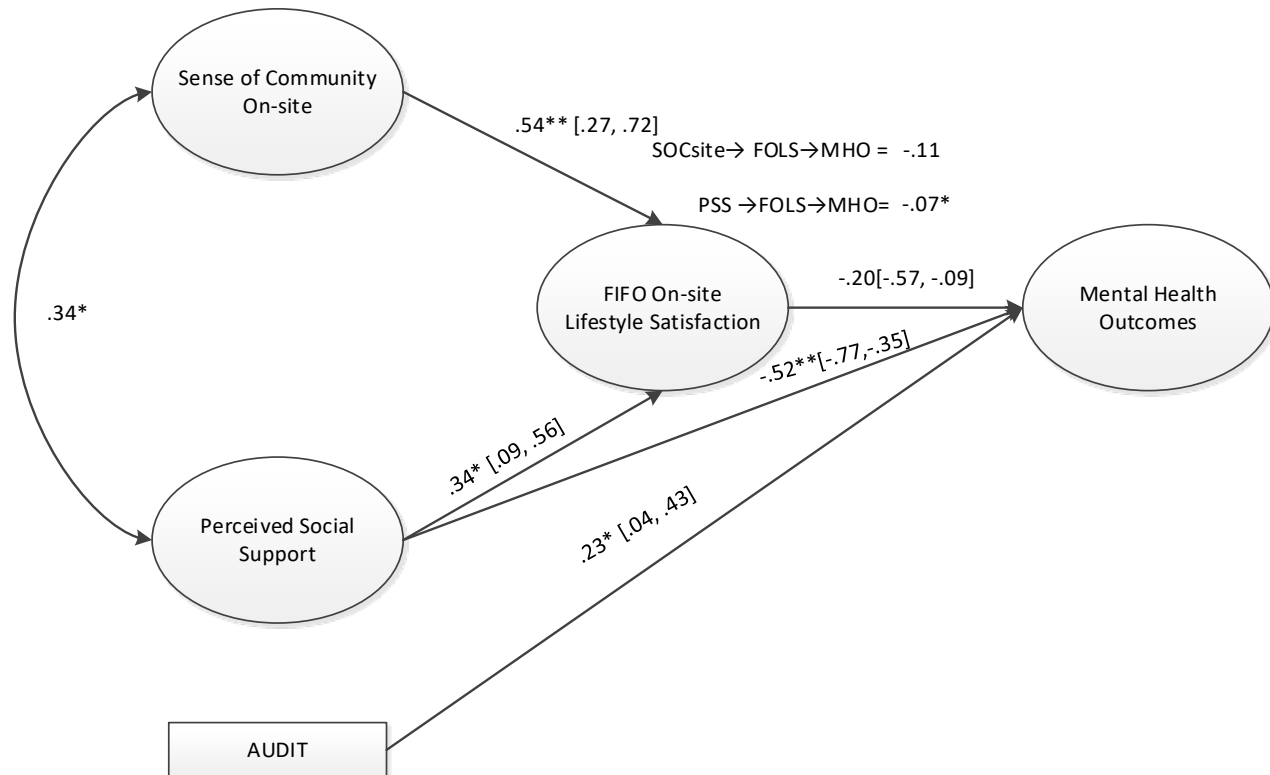


Figure 16. Structural Model Time 2

*sig at .05, **sig at .001

The Time 1 model was applied to data collected at Time 2 to assess if the model was useful at an additional time point. The results of the analysis partially supported Hypothesis 1 and Hypothesis 2, as the pathways between sense of community on-site and perceived social support to FIFO on-site lifestyle satisfaction remained significant. However, a notable shift in pathway coefficients was observed with a distinct strengthening of the pathway from the perceived social support predictor, and a distinct weakening in the FIFO on-site lifestyle satisfaction and sense of community on-site predictors (refer to Figure 15 and Figure 16). Hypothesis 3 was supported, as the AUDIT remained a significant direct predictor of mental health outcomes.

The Time 2 model was of reasonable fit, as seen in the model fit indices presented in Table 18. It was not feasible to adjust the model as the sample at Time 2 did not meet the recommended size for the number of free parameters in the structural model (Kline, 2005), and thus further modification analysis was not conducted.

Table 18.
Fit Statistics for Model with Time 2 Data

	df	χ^2/df	RMSEA	CFI	GFI	NNFI (TLI)	SRMR
Model T2	85	1.531	.076	.914	.844	.894	.0914
Indications of model fit			<.080 (Chen et al., 2008)	≥.900 (Hu & Bentler, 1999)	≥.900 (Hooper, Coughlan, & Mullen, 2008)	≥.900 (Hu & Bentler, 1999)	≤.080 (Hu & Bentler, 1999)

Note: df= Degrees of freedom; χ^2/df = Chi-square divided by df; RMSEA= Root mean square error of approximation; CFI= Comparative fit index; GFI= Goodness of fit index; NNFI= Non-normed fit index; sRMR= Standardised root mean square residual.

Bootstrapping was used to test for indirect effects, with the SOCsite→FOLS→MHO pathway being non-significant, while the PSS→FOLS→MHO pathway was significant.

Table 19.
Effect Sizes Time 2 Model Outcome Variables

Endogenous variable	Predictors	Variance explained
Mental health outcomes	FOLS, PSS	47.60%
FIFO on-site lifestyle satisfaction	PSS, SOC site	53.50%

Note: FOLS= FIFO on-site lifestyle satisfaction; PSS= Perceived social support; SOC site= Sense of community (site location).

7.4.3 Post-Hoc Exploratory Analysis

As the matched sample dataset was too small to use for the structural model analysis, post-hoc analysis was performed in order to supplement the Time 2 analysis.

7.4.3.1 Descriptives for Matched Case Sample

The matched sample consisted of participants who were correctly matched using their confidential code at Time 1 and Time 2 ($N=43$). Means, standard deviations, range and possible range of the matched case sample for each of the scales for Time 1 and Time 2 are included below (refer Table 20).

Table 20.

Descriptive Statistics for Matched Case Sample Time 1 and Time 2 (N=43)

	<i>M</i>	<i>SD</i>	Range	Possible range
FOLSS	26.74	3.29	20-33	7-35
Time 2	26.67	3.09	21-33	
MSPSS	62.14	14.40	12-84	12-84
Time 2	61.02	15.42	12-84	
BSCS Site	26.37	4.69	17-36	8-40
Time 2	25.56	4.44	18-34	
BSCS Home	25.72	4.97	14-35	8-40
Time 2	25.79	5.08	13-37	
DASS-21	10.04	8.33	0-35	0-63
Time 2	10.14	8.84	0-29	
AUDIT	6.81	5.99	0-28	0-40
Time 2	6.86	5.70	1-22	
SWLS	24.14	6.08	6-35	5-35
Time 2	22.83	6.42	7-31	

Note: FOLSS = FIFO On-site Lifestyle Satisfaction Scale; MSPSS = Multidimensional Scale of Perceived Social Support; BSCS = Brief Sense of Community Scale; DASS-21 = Depression Anxiety Stress Scale (short version); AUDIT = Alcohol Use Disorder Identification Tool; SWLS = Satisfaction With Life Scale

7.4.3.2 Comparison of Time 1 and Time 2 scores

A series of paired samples *t*-tests with alpha level .05 were performed to compare average scores of key constructs at Time 1 compared to Time 2 for the matched case sample. There were no significant differences across the two time points. This finding, combined with strong, statistically significant positive correlations between variables at Time 1 and Time 2 (Table 21) indicate that scores remained fairly consistent between the two time points across all variables.

Table 21.

Correlation Coefficients for Paired Samples t-test for Variables at Time 1 and Time 2

Pair	correlation
FOLSS T1, T2	.763**
MSPSS T1, T2	.812**
BSCS site T1, T2	.529**
BSCS home T1, T2	.440**
DASS-21 T1, T2	.645**
AUDIT T1, T2	.946**
SWLS T1, T2	.673**

Note: **sig at .001 level

7.4.3.3 Multiple Regression

Two multiple regression analyses (MRA) were conducted. The first multiple regression estimated the proportion of variance in Time 2 satisfaction with life accounted for by Time 1 levels of FIFO on-site lifestyle satisfaction, social support, and sense of community on-site. The second multiple regression estimated the proportion of variance in Time 2 depression, anxiety and stress (total score) accounted for by Time 1 levels of FIFO on-site lifestyle satisfaction, social support, and sense of community on-site.

A number of assumptions were evaluated prior to interpreting the results from the analyses. Inspection of the normal probability plot and scatterplot indicated that normality, linearity, and homoscedasticity conditions were met. Mahalanobis distance indicated no cases had scores that exceeded the critical value, and relatively high tolerances were observed for all variables indicating multicollinearity was not an issue.

In combination, the support predictor variables at Time 1 accounted for a significant 22% of the variance in satisfaction with life at Time 2, $R^2=.220$, adjusted $R^2=.160$, $F(3,39)=3.67$, $p=.02$. For the second MRA, the support predictor variables at Time 1 accounted for a significant 22.6% of the variance in depression, anxiety and stress at Time 2, $R^2=.226$, adjusted $R^2=.167$, $F(3,39)=3.80$, $p=.02$. Unstandardised (B) and standardised (β) regression coefficients as well as squared part correlations (sr^2) for each predictor in each analysis are presented in Table 22.

Table 22.

Unstandardised (B) and Standardised (β) Regression Coefficients and Squared Part Correlations (sr²) for each Predictor in Two Regression Models Predicting Satisfaction with Life, and Depression, Anxiety, and Stress

Outcome	Predictor	B	β	sr ²
Satisfaction with Life				
	FIFO on-site lifestyle satisfaction	.051	.026	.001
	Perceived Social Support	.201**	.482	.195
	Sense of Community on-site	-.090	-.065	.003
Depression, Anxiety, and Stress				
	FIFO on-site lifestyle satisfaction	-.626	-.233	.042
	Perceived Social Support	-.242**	-.421	.148
	Sense of Community on-site	.495	.262	.052

Note: **sig at .01 level

Results indicated that perceived social support at Time 1 was the only predictor that contributed unique variance to both satisfaction with life, and depression, anxiety, and stress at Time 2. The squared part correlation (sr^2) indicates that perceived social support uniquely predicts 19.5% of the variance in satisfaction with life, and 14.8% of the variance in depression, anxiety, and stress.

7.4.4 Sample comparison

To aid in the interpretation of the Time 2 model, a series of independent samples *t*-tests were performed on key predictor variables to assess if the sample who continued to participate at Time 2, and the sample who participated at Time 1 only, were comparable. Results indicated that there was no significant difference in the average age of the two groups, or in the mean scores for alcohol use, satisfaction with life, social support, sense of community at home and on-site, or levels of depression, anxiety and stress. However, a significant difference was identified for FIFO on-site lifestyle satisfaction. Levene's test was significant on this variable, and therefore equal variances could not be assumed, thus Welch's *t*-test was referred to for the results.

Welch's *t*-test was used to compare average FIFO on-site lifestyle satisfaction scores between those who participated at Time 1 only ($N=348$) and those who participated at both Time 1 and Time 2 ($N=43$). The *t*-test was statistically significant, with the Time 1 only group ($M=25.24$, $SD=4.87$) reporting satisfaction levels 1.51 (95% $CI= -2.64$, $-.38$) lower than the matched group, ($M=26.74$, $SD=3.29$), $t(67.23)=-2.67$, $p=.004$. Hedge's *g* was used to interpret effect size due to the unequal sample sizes, $g=0.32$ (small effect).

7.4.5 Discussion Time 2

The Time 2 follow up analysis highlights the importance of informal supports for people working FIFO. In particular, it was observed that perceived social support was a key variable that was related to mental health outcomes. Between the first study and second study of this phase, there had been notable changes in the resources sector, with the height of the boom in 2014, and a downturn occurring thereafter in 2015 and ongoing (Maxwell, 2017). The start of this shift is captured within the time period of this research (2015-2016), which makes the findings here potentially influenced by the context of the industry, but also valuable in terms of understanding the need for holistic support in order to adapt to the cyclic nature of mining booms and busts (Maxwell, 2017).

In comparing the model at Time 1 to the model at Time 2, there was a weakening in the FIFO on-site lifestyle satisfaction predicting mental health outcomes pathway, and notable strengthening in the direct pathway of perceived social support predicting mental health outcomes. Although interpretation of the model requires caution due to the sample size, this shift is meaningful in highlighting where support is reportedly being drawn from during a mining downturn climate (Tynan et al., 2016).

Model fit indices for the model at Time 2 indicated a reasonable fit (Hooper et al., 2008). The Goodness of Fit Index and Non-normed Fit Index did not meet, but were nearing, recommended levels, however the sample size was small ($N=92$) which likely influenced this (Tabachnick & Fidell, 2013). The predictors included in the model at Time 2 accounted for 47.6% of the variance in the mental health outcomes of depression, anxiety, and stress, and overall satisfaction with life, which is considerable. The post-hoc exploratory analyses further support the importance of perceived social support as a key driver of satisfaction with life and protective factor for depression, anxiety and stress. Multiple regression analyses using the matched sample from Time 1 and Time 2 identified perceived social support at Time 1 as contributing unique variance, accounting for 19.5% in satisfaction with life at Time 2, and 14.8% of the variance in depression, anxiety, and stress at Time 2.

Interestingly, the sample comparison indicated that those that participated at both Time 1 and Time 2 had slightly higher levels of FIFO on-site lifestyle satisfaction than those that only participated at Time 1. However, FIFO on-site lifestyle satisfaction was not identified as being a key driver of outcome variables at Time 2. The series of *t*-tests conducted with the matched sample indicated that constructs remained reasonably stable between the two time points, with no statistically significant differences identified. This was further supported with correlation coefficients between Time 1 and Time 2 ratings showing positive strong relationships which were statistically significant. This gives confidence to the interpretation of social support acting as a protective factor.

The data collection period for Time 1 occurred simultaneously with the beginning of the mining downturn at the end of 2014, with Time 2 collection concluding after a 6 month interval (for each participant) mid 2016. During this time, the effects of the downturn progressed (Maxwell, 2017). The downturn has decreased employment opportunities in the mining sector, which has cultivated fear among remaining employees of job loss or salary reduction, and financial strain and hardship for those who have had their employment terminated (Education and Health Standing Committee, 2015). Job loss is a stressful life event, which can have implications for individual and family wellbeing, and has been linked to increased likelihood of suicide (Caroli & Godard, 2016; Olesen, Butterworth, Leach, Kelaher, & Pirkis, 2013). Between 2013-2015, statistics show a 6.9% decrease in mining employees, meaning that 12,806 people lost their jobs in this industry (Australian Bureau of Statistics, 2015). This contributes to feelings of job insecurity, which has been found to be detrimental to overall health as it significantly increases stress (Caroli & Godard, 2016). The identification of social support as a key variable here suggests people who FIFO are turning to friends, family and significant others for support in this time of stress. Social support has been identified to 'buffer' against stress and unfavourable mental health outcomes (Cohen & Hoberman, 1983; Cohen & Wills, 1985; Feeney & Collins, 2015), which would undoubtedly be beneficial for workers in this context.

A potential risk factor for people who FIFO in engaging with their informal support networks is the extensive periods spent away from their permanent residence and thus friends and loved ones (Blackman et al., 2014). Feelings of isolation and loneliness while away, missing out on important events, not being able to participate in day to day life with family, difficulty in communicating regularly with friends and family while away on-site, and not participating in leisure activities at home that occur on a schedule are some commonly reported challenges of the FIFO lifestyle (Misan & Rudnik, 2015). In addition to this, long work days paired with fatigue and limited leisure spaces on mining camps (Perring et al., 2014) can limit the amount of socialising between workers while on-site. However the bonds that are made between workers on-site have been highlighted to be a significant part of FIFO life, and a significant help in coping with work demands (Considine et al., 2017). Co-worker support has previously been found to assist with depression, family, and work stress (McTernan et al., 2016; Parker, Cotton, Yates, Baxter, & Arend, 2017) which is consistent with reports from people who FIFO who describe the relationships with their team to promote positive experiences while participating in FIFO (Henry et al., 2013).

The importance of social support for both FIFO and resident mine workers has been established (McLean, 2012), with particular significance placed on the 'site family' and sense of camaraderie felt working within a team. Workplace culture is reported to be built on these

connections and friendship, which is beneficial for workers' wellbeing (McLean, 2012). This suggests that this informal support resource is significant for people who are participating in mining in varying capacities, which is therefore relevant for the entirety of the mining workforce not solely the estimated 60,000 people employed on FIFO contracts (Education and Health Standing Committee, 2015). The preference for seeking support from friends and family as opposed to accessing formal support services reported by people who FIFO has been identified through numerous avenues, including exploratory research on factors influencing psychosocial wellbeing (Torkington et al., 2011), help-seeking behaviours (Vojnovic et al., 2014), and regularly described in anecdotal sources such as ABC News (Coghill & Blackmore, 2014), as well as large scale reports by Lifeline WA and state and national governmental enquiries (Education and Health Standing Committee, 2015; Henry et al., 2013; Infrastructure Planning and Natural Resources Committee, 2015).

Given the many benefits of social support, the reported preference for drawing support from informal social networks as opposed to formal services, the stress inducing climate of the industry, and the challenges of working FIFO to engaging in social networks (Education and Health Standing Committee, 2015), changes need to be made to help promote social connectedness for people who FIFO. The importance of this change is paramount, as this industry, although in economic downturn, is still one of the primary industries in Australia operating in regional and remote areas, and thus will continue to employ a large proportion of workers on a FIFO basis. The health and wellbeing of people who FIFO has been identified to be lower when compared to the general population, and much of this has been attributed to factors involved in the FIFO lifestyle. With this in mind, there is opportunity to promote better wellbeing for workers, which in turn is beneficial for overall productivity (Wright, Cropanzano, & Bonett, 2007).

7.4.5.1 Limitations

Participation rates for Time 2 were lower than expected, and issues with matching the data at the two time points further reduced the sample for the planned analysis. This meant that the planned analysis of the model with Time 1 predicting Time 2 outcomes could not be tested. The decision to use the total Time 2 dataset ($N=92$) for testing the applicability of the Time 1 model at Time 2 was made in order to maximise the sample size, as the cases that were able to be matched using the participants self-created code was notably smaller ($N=43$).

7.5 Overall Discussion

The findings from this analysis paint a concerning picture for the experience of people who FIFO and their mental health. The levels of depression, anxiety and stress found in this study are higher than the general population, which is consistent with findings from other FIFO research and the understanding of the FIFO lifestyle as being challenging (Henry et al., 2013; Vojnovic & Bahn, 2015). In conjunction with this finding of elevated levels of depression, anxiety and stress, is the finding that this sample of FIFO workers, on average, reported lower levels of informal social support, and lower levels of overall life satisfaction than those reported in general population studies. Social support was identified to have unique contribution for levels of depression, anxiety and stress, and satisfaction with life in the follow up analysis. This source of support has the potential to be further harnessed to augment wellbeing for this population.

On the outset of the study at Time 1, the mining industry was relatively stable and in a boom climate (Maxwell, 2017). The findings from this study highlighted the role of particular on-site factors such as FIFO on-site lifestyle satisfaction and on-site sense of community being associated with favourable mental health outcomes during a boom period. At this point in time, people who FIFO had enjoyed a number of years of prosperity and job security in the mining industry (Maxwell, 2017), which may have engendered a focus for on-site facilities, particular rosters, forming long standing bonds with workmates, and negotiating a rewarding social environment on-site to enhance the experience of the FIFO lifestyle (McDonald et al., 2012; Perring et al., 2014; Vojnovic, 2016). Although the levels of depression, anxiety and stress identified were high, especially in the context of comparatively lower levels of informal support, job security was afforded and suggest the conditions of FIFO contracts and facilities could be negotiated in order to make the FIFO lifestyle better.

By the conclusion of the study at Time 2 in mid 2016, the effects of the mining industry downturn were being felt nationally, and particularly in Western Australia which is home to the majority of mining operations (Maxwell, 2017). Changes contributed to uncertainty in the industry, with many redundancies in the mining sector, predominantly in mining exploration and support services (Australian Bureau of Statistics, 2015). Job insecurity has previously been found to unfavourably affect health and wellbeing (Caroli & Godard, 2016), which would suggest these changes in the industry would have a further detrimental effect on people who FIFO, in addition to the challenges already identified. In this climate of mining downturn, some hopeful findings identified in this study were perceived social support being associated with good mental health outcomes.

Between the two time points, perceived social support was identified as the most important factor for mental health outcomes in this study. Problematically, accessing social

support has also been consistently reported by people who FIFO as being a particular challenge (Education and Health Standing Committee, 2015; Torkington et al., 2011). This highlights a distinct need to boost social connection for people who FIFO with their friends, family, and partners, as well as work colleagues on-site (Considine et al., 2017; McTernan et al., 2016). This indicates strategies for improving wellbeing for people who FIFO need to incorporate a dual-focus. Firstly, alleviation of depression, anxiety, and stress through provision and engagement of support. Secondly, through promoting access and availability to a range of informal support such as social support. What is meaningful in understanding the findings across the two time points in this phase, is that the strongest predictor of mental health outcomes changed over time. This suggests that multifaceted support is needed for people who FIFO in order to adapt to the cyclic nature of the industry.

Social support is multifaceted, and acts as a protective factor against stressful life events and suicidal ideation, and can boost overall wellbeing (Handley et al., 2012; Kutek et al., 2011). Through close and caring bonds, individuals are encouraged to move beyond survival and instead thrive (Feeney & Collins, 2015). Social support is associated with overall satisfaction with life (Lim & Putnam, 2010), and given this it is undeniably a useful and beneficial resource for people working FIFO. However, having support from friends, family, and significant others is not sufficient for subjective wellbeing, as integrated support from multiple sources as well as particular work conditions has been found to be important for mental health and wellbeing (Considine et al., 2017). Holistic support, that includes support from multiple sources including formal services (Tynan et al., 2016) and informal networks (McTernan et al., 2016; Torkington et al., 2011) as well as favourable work conditions (Considine et al., 2017) could have the propensity to create positive and lasting change for FIFO mental health. What remains to be considered are the intricacies of the challenges experienced in working FIFO, what supports and conditions are particularly helpful and useful, and what is additionally needed to make FIFO work, work.

7.6 Handover

This chapter has outlined the findings for Objective 2. The findings presented here indicate that social and community support mechanisms are helpful for people who FIFO. FIFO on-site lifestyle satisfaction has now been shown to be an important factor in the experience of FIFO and worker wellbeing, particularly during times of economic boom. The structural model developed here provides an overall insight into the predictive utility of informal supports and their effect on mental health outcomes, and suggests that promoting protective factors has the propensity to support overall wellbeing for people who FIFO. This can direct and shape how the crisis of mental health currently acknowledged in FIFO populations can be

approached. In the next phase of this research, qualitative interviews will seek to understand how these strategies can assist in addressing the key challenges of the FIFO lifestyle, giving further explanation of the findings from Phase One here.

Chapter 8 Method Phase Two: Qualitative Interviews

8.1 Pre-start

In this chapter I will describe the method used for Phase Two of the research study. Phase Two is targeted to address Objective 3, as highlighted in Figure 17 below. The aim of this phase was to provide further depth of explanation of the issues identified in Phase One, and to address the research question: ‘How can people living a FIFO lifestyle be supported effectively?’ To uphold the explanatory sequential design, findings from Phase One were used to inform the direction and materials for Phase Two. The interview guide and card sort activity used in the interviews were developed to seek greater depth of key findings from Phase One. The card sort activity completed during the interview included 10 cards representing key support sources that were identified through participants’ responses to open ended questions in Phase One. The findings from the analysis of the interviews and card sorts will be described in Chapters 9 and 10.

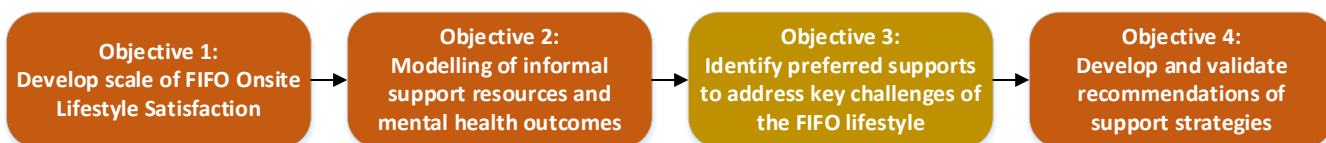


Figure 17. Flow Diagram of Project Objectives Addressing Objective 3

8.2 Participants

Twenty people aged 18 years and over with experience working in a FIFO position were recruited for individual interviews. Participants who registered interest to be interviewed at the conclusion of the Phase One T1 survey were contacted by email. A total of 144 participants registered their interest to be interviewed, and using a total sample approach, each participant was contacted with interview invitations being sent in groups of 10. The nested nature of participants for all phases of the study further upholds the mixed method nature of the project (Yin, 2006).

The participants included 10 men and 10 women, with ages ranging from 25-53 years. Participants had been working FIFO between 3-20 years. Just over half of the participants were partnered or married. A range of positions were represented including machine operators, geologists, explosives technicians, health and safety, information-technology, mine surveyor, maintenance, administration, and engineers. Two participants had recently discontinued FIFO

work since completing the online survey, and 18 participants were still currently engaged in FIFO at time of interview.

8.3 Materials

Interviews were recorded using a digital audio recorder. The materials required for Phase Two of the study included an interview guide and support resource cards, which were developed from Phase One findings. For participants who were interviewed over the phone, a card set was emailed prior to the interview for the participant to print out or refer to on screen.

8.3.1 Interview Guide Development

The interview guide was developed in order to ask participants questions that would address the Phase Two objective, as well as give further insight and explanation to the findings from Phase One. The focus of the interview was to understand the key challenges and support strategies, so questions were developed to firstly ask the participant to describe the challenges of working FIFO, and then move in to describing the strategies needed in order to address or assist with these challenges.

Descriptive analyses were performed on data from Phase One at Time 1. Examination of the descriptive statistics indicated there were potential differences in scores for men and women, and also for those who were partnered compared to single. A series of ANOVA's were performed to further investigate these patterns. The results of this analysis indicated significant differences between levels of perceived social support for men ($M=59.17$, $SD=14.45$) and women ($M=64.82$, $SD=12.92$), where men reported lower levels $F(1, 389)=16.03$, $p<.001$, $\eta^2=.039$. People who reported being partnered ($M=23.54$, $SD=6.30$) in comparison to those who reported being single ($M=20.43$, $SD=7.29$) were found to have higher overall life satisfaction $F(5,385)=3.677$, $p=.003$, $\eta^2=.046$. People who were partnered ($M=64.70$, $SD=10.50$) were also found to have higher perceived social support than those who reported being single ($M=54.01$, $SD=14.92$), $F(5,385)=7.451$, $p<.001$, $\eta^2=.088$. Questions were added to the interview guide to explore these differences. The final interview guide is presented in Figure 18 below.

Interview Guide

Demographic Information

- Current position
- How long working FIFO
- Roster
- Gender
- Age

Do you have any questions before we begin?

START OF INTERVIEW RECORDING

Introduction for participants

- Thank you for participating in the first part of this study, and thank you for agreeing to participate in an interview for the second part.
- This is where I will be asking targeted questions to find out more about what I've learned from the survey in part one.

Questions

1. What interested you in participating in this interview today?
2. What do you think are the main challenges in working FIFO?
 - What changes did you notice in your life when you started FIFO?
3. What do you think is needed to address these challenges?

Card sort activity: Please order these resources and support strategies from *most* important to *least* important to you.

4. How may the challenges be different for men and women on-site?
5. How may the challenges be different for people who are single or partnered?
6. What particular supports are needed for these groups (men, women, single, partnered)?
7. Are there any other comments you would like to make about the challenges or support needed for people who FIFO?

Figure 18. Phase Two Interview Guide

8.3.2 Card Sort Development

Q-methodology is a useful interactive method for understanding participants' perceptions and attitudes (Cross, 2005). This method was first described by William Stephenson as a tool to empirically study subjectivity (Stephenson, 1935) and usually involves a set of cards with topics or items on each, that participants rank, order, or group according to the task posed to them. Capturing perceptions and attitudes of participants relies on researchers inferring the effects of these by examining participants' choices, actions, and cognitive appraisals (McKeown & Thomas, 2013). Participants are able to create their own meanings through the Q-sort, as they can physically organise the cards to represent their view (Ramlo & Newman, 2011).

In this study, participants were asked to rank order the cards on a continuum of importance, the top being the most important and the bottom being the least important to them. The card sort activity was performed during the interview, and as such the card sort was used primarily as a structured prop for participants to explore their support priorities and preferences. In applying a card sort, it is customary to interview participants after they have completed the card sort in order to further understand their choices (Ho, 2017), however in the present study the card sort was assimilated into the semi-structured interview.

To inform the support resources to be included in the card sort, the open ended responses from Phase One Time 1 and Time 2 were examined. This was done in order to strengthen the mixed method design of the study by making specific connections between Phase One and Phase Two, and utilised the explanatory sequential design by using the qualitative phase to explain findings from the quantitative phase. The open ended questions' responses were analysed using a directed content analysis in accordance with Hsieh and Shannon (2005), as this aligns with the targeted nature of the data. As the data was produced through open ended questions in a survey, the responses were specific and limited by the specific questions.

A directed content analysis can use existing research or theory to shape and direct the analysis (Hsieh & Shannon, 2005). The goal is to conceptually extend on theoretical frameworks, theories, or research findings. The process is therefore more structured than a conventional content analysis. To complete this directed content analysis, I used the predetermined categories of *Challenges* and *Support Strategies* to guide the coding of the open ended responses from the survey data, in order to address the relevant objective of the phase, and inform the interview guide and card sort materials. Using Nvivo (v 11.4), I coded the data identifying challenges and support strategies described by respondents. Once this

initial coding was complete, I reviewed the categories and amalgamated categories that theoretically belonged together, and developed relevant descriptions for each new category.

Table 23.

Summary of Content Analysis Codes for Challenges and Preferred Support Strategies

Challenges:	Support strategies:
<ul style="list-style-type: none"> • Fatigue • Staying in contact/connected to people • Relationship breakdown (misunderstandings, miscommunication, lack of communication, distance) • Communication facilities (internet poor, not available in room etc.) • Cycle of financial dependence on FIFO • Adjusting to the transitions (site to home, home to site) • Dating • Relationship with management (and lack of understanding/support from) • Controlling/restrictive site and behaviour rules • Seeking support from someone who does not understand what the lifestyle is like • Suppressing feelings, not feeling able to voice feelings or concerns • Culture on-site (competitive, fatigued, defensive. "Mental health is still not respected as an integral part of working [FIFO] lifestyle"). • Talking about mental health without fear of losing employment • Impact on families, lack of support for family back home (which causes FIFO stress) • Organisation of flights to and from site • Travel time can take 2 days off break time at home • Being overwhelmed with what seems like 'superficial' support options ("call this number"). • Downturn has seen major cuts to support functions, cuts to extracurricular activities/after work activities. • Companies changing rosters, and citing the iron ore price drop as an excuse to do this • "Lots of talk, no action" • Condition of camp decreasing morale (facilities, food, cleanliness of rooms) 	<ul style="list-style-type: none"> • Pre-work preparation and training (including mental health. How to handle breaks, how to handle being on-site) • Advice from people who are living or have lived the lifestyle, seminars, encourage people to learn from the success and mistakes of others • Activities on-site to promote socialising. (team building, card games, bingo, quiz nights, cooking nights, movie nights, fundraising, music, entertainment) • Family days (family or partner visit site) • Raising awareness of what living FIFO is like, so friends and family can understand • Preferred rosters, with equal time at home, capped at 2 weeks away (8/6 roster seems preferred) • 12 hour working day 'door-to-door' cap (assist fatigue, allow time to communicate with family etc. Often working day is 14 hours, including travel. This exacerbates fatigue) • Support available on-site (Chaplain, counsellor, medical/physio) • Communication facilities (in room, good internet connection, allow skype on work computers) • Support for family at home (training: how to manage having a partner away, how to approach the issue with them. Meetup groups) • Site facilities maintenance (gym) • Financial planning/training, how to handle money. Budget training. Plan for career, goal setting • Leadership and support from management (check in with staff, prioritise support and wellbeing) • Common rooms for music, sports, that is not the bar. • Meetup groups, clubs on-site, buddy programs for new staff, diversity and inclusion committee

A summary of the categories yielded from this analysis are outlined in Table 23. The support strategy categories were refined to an overall set of 10 key support resources (see Figure 19 below) and presented on a set of cards for participants to manipulate and arrange in order of most to least important to them.

Card Sort

Instruction: Please order these resources and support strategies from *most* important to *least* important to you.

- Pre-commencement training and support (e.g. 'Buddy' program, Advice seminars by people who work FIFO, Financial planning and strategies)
- Provision of on-site facilities and common/leisure areas (well maintained).
- Community activities (e.g. volunteering, fundraising, sports teams, social committees)
- Support and promotion of mental health from management (e.g. health check-in at pre start meeting).
- Reliable communication facilities (e.g. internet, skype available in room).
- Work day and roster caps (e.g. max two weeks on-site; 12 hour work day 'door to door').
- Formal support services (Employee Assistance Programs, Support phone lines, support groups).
- Support and workshops for family/friends at home (workshops, meet-ups, support groups with other FIFO families/friends)
- Support from friends, family, and/or significant other.
- Organised social activities and events on-site (e.g. quiz nights, pizza nights, social competitions)

Figure 19. Phase Two Card Sort Items

8.4 Procedure

A suitable place and/or time was negotiated with interested persons to participate in face-to-face, phone, or Skype interviews. Prior to the interview, participants were provided via email with the participant information sheet which outlined important information about the study, their rights as a participant, and how the data they provided would be used. For participants who participated by phone or Skype, the card sort was also emailed. In addition, I verbally reiterated that all information shared during the interview process would remain strictly confidential within the research team, and anonymity was assured in my thesis and all published material. Formal consent to participate was given both verbally and formally through a consent form, which also outlined permission to record the interview. Once consent had been given and the participant was prepared to begin, the interview was conducted with use of the interview guide. On average, interviews were 1 hour in length. Participants were invited to be involved in the respondent validation process for Phase Three, and were asked to provide an appropriate private email address if they wished to do so. These participants were contacted during Phase Three, to further clarify and provide deeper understanding of initial findings.

Interviews were digitally recorded, and transcribed verbatim in Playscript format. All identifying information was removed or exchanged with pseudonyms prior to transcripts being analysed or viewed by my supervisors. The transcripts of interviews were entered into NVivo (v.11) qualitative data analysis software for coding.

8.5 Analysis of card sort

The rank order (most important as position one, least important as position ten) of each of the cards was recorded for each participant, and input into a table in Microsoft Excel. The table summarised how many times each card was placed in each position. Each card's overall position was calculated by calculating an overall total. This was done by summing the rank positions of that card, using reverse scoring where Rank 1 = 10, Rank 2 = 9, Rank 3 = 8, etc. After each card's total was summed, the cards were ordered from highest to lowest score. This meant that the cards could be ranked in the order that participants identified as being of highest to lowest importance.

8.6 Analysis of Interviews

Interview transcripts were analysed using thematic analysis, as per the steps described by Braun and Clarke (2006). In simple terms, thematic analysis involves searching across a data set in order to identify repeated patterns of meaning. Thematic analysis is used to interpret, organise, and identify patterns, known as 'themes', within qualitative data. A set of themes is

able to capture and describe identified patterns within data in rich detail (Braun & Clarke, 2006). The thematic analysis was conducted within a contextualist epistemology, acknowledging that individuals make meaning of their experiences and in turn their experiences are also influenced by the broader social context (Bishop et al., 2013). In this way, the thematic analysis conducted here culminates in findings that both reflect participants' reality, and also looks deeper under the surface of this reality (see Chapter 4 for further discussion of the methodology).

The thematic analysis process here is specifically driven by the findings of Phase One. As such, this engenders a process which is described as a theoretical thematic analysis. Given the specific analytic focus of interest, this process aims to give a less rich description of the data overall but focuses on giving rich detail about a particular aspect of the data (Braun & Clarke, 2006). In this case, the theoretical thematic analysis was governed by a specific research question 'How can people living a FIFO lifestyle be supported effectively?'

Braun and Clarke (2006) outline specific steps to completing a thematic analysis. Transcripts were first read and re-read to familiarise myself with the data, noting down initial ideas or particular points of interest in relation to support and challenges of working FIFO as governed by the research question. In this way, the process of analysis is focused on identifying the kinds of support that participants describe as being useful and important. Secondly, initial codes were generated in a systematic line by line coding of the entire dataset, searching specifically for segments within transcripts which give insight into the focus of interest. Next, these clusters of initial codes were reviewed in a process of searching for overall patterns to develop themes that capture the characteristics of useful supports. These preliminary themes were then reviewed and refined, and a thematic map generated. In the final stages, themes were defined and named in order to refine the boundaries of each theme, and the overall story of challenges and how support resources can be useful was presented as the theme set. Lastly, themes are presented in a report, with themes supported and illustrated by selected quotations from the data (Braun & Clarke, 2006).

8.7 Handover

In this chapter I described the methods used for Phase Two of the project. In the following chapters I will report on the Challenges (Chapter 9) and Support Strategies (Chapter 10) themes identified through the analysis.

Chapter 9 Phase Two, Objective 3: Challenges of Living FIFO

9.1 Pre-start

The nested design of this phase cultivated a directed approach within the parameters of Phase One findings. In this way, this phase was abductive, with particular topics of exploration being targeted through the design of the interview schedule (deductive), but with room for other and additional meanings to emerge. The findings of this qualitative phase took an unexpected turn. Originally, the design of the overall project positioned the interviews to be nested within the quantitative findings in order to target positive operationalised ideas of how to make FIFO work; what also emerged in participants' voices were themes of immense challenges, and experience associated with suicide by others. In order to honour these stories, and to highlight the importance of promoting change in this industry, I have included this additional chapter in this phase to present these findings.

9.2 Challenges associated with Living FIFO

A notable construction of FIFO work overall identified in the stories participants told was that FIFO was inherently hard, it was expected to be a challenge, and this appeared to permit and accept many challenges and adverse conditions as simply how things were. This seemed to contribute to participants' conceptualisation of FIFO challenges as a natural part of the lifestyle, rather than conditions that could be altered and improved. This attitude seemingly creates a permissive approach to FIFO remaining as a challenge.

Participants identified specific challenges of FIFO, which are represented in the themes in this chapter. Many of these challenges were cultural, or precipitated by work conditions. The thematic map (presented in Figure 20) displays the themes and is designed to be read from left to right. The theme titles are contained in the grey ovals (and one sub-theme indicated by a smaller oval and line connecting it to the overall theme), a description of the themes in the orange boxes, and exemplar quotes in speech boxes.

Within the write up for each theme, quotes from participants' transcripts are used and after each quote a participant number is presented in parentheses. This is done to illustrate that quotes were drawn from the full sample of participants, and supports the representativeness of the themes for the participants as a group.

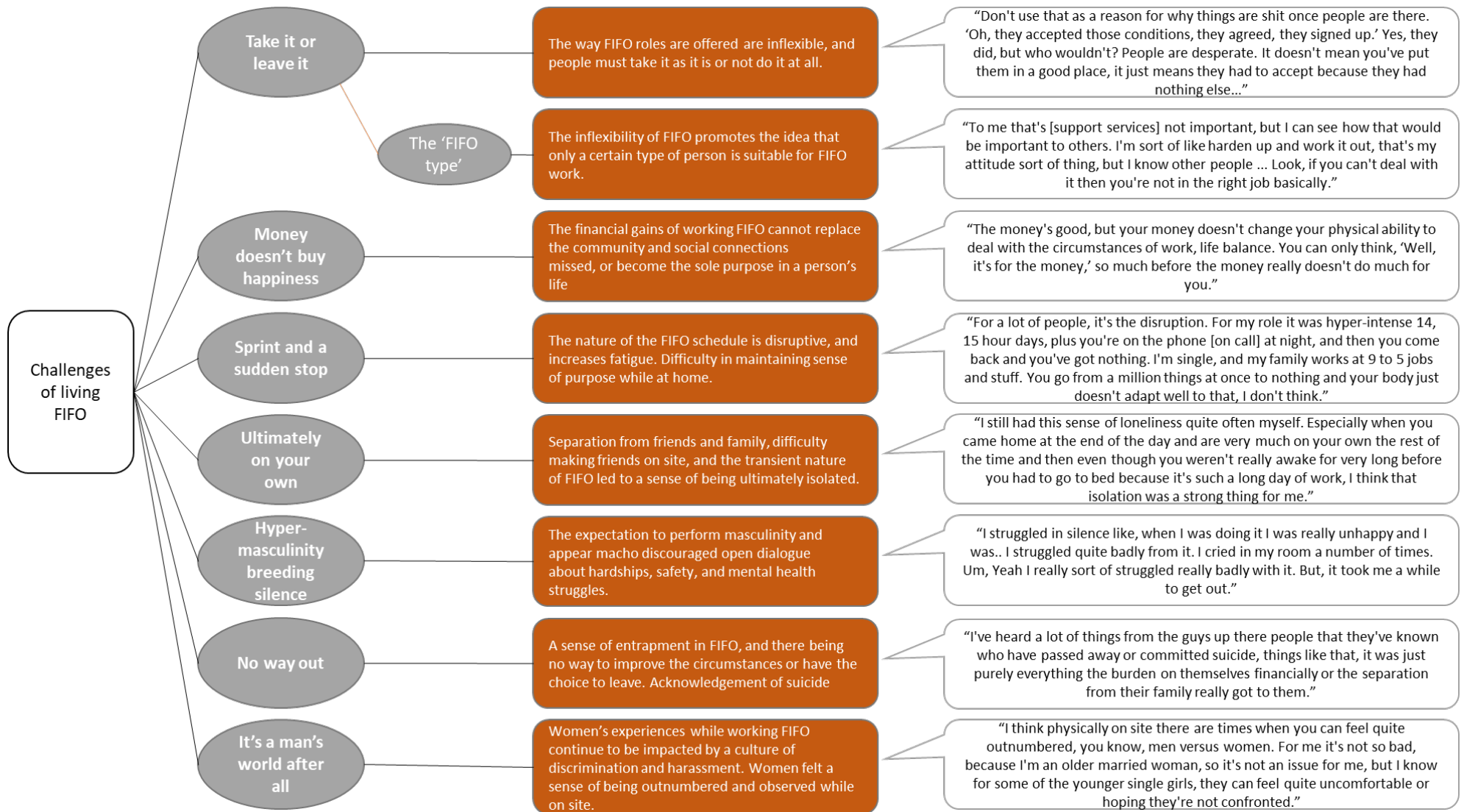


Figure 20. Thematic Map of Challenges Themes with Description and Supporting Quotes

9.3 Themes

Take it or leave it

The culture of mining, particularly in the current economic climate, was identified by participants as being a significant challenge in living FIFO. Post mining-boom, the tough economic climate appears to have created a culture where workers feel under unrealistic pressure to perform, and recognise that they are ultimately disposable and replaceable. This culture has permeated into various aspects of the lifestyle, giving participants a sense that the demands of FIFO must be met by individuals, rather than FIFO adapting to the needs of individuals. In this way, the culture of mining and demands of FIFO were understood and accepted by participants to be inflexible and unchanging, giving a sense that they must *Take it or leave it*, with no option for compromise. In particular, participants reflected on taking or leaving issues surrounding company inflexibility, unsafe work practices, and regimentation on-site.

A key aspect of this theme was the push on employees to focus on production at all costs. For some participants, this culture was observed and identified explicitly, for example one participant noted this push being driven by supervisors, *“The terrible culture that's bred with some supervisors. Which it is to produce at all costs.”* (4) The recognition of this dynamic and evaluation of it as harmful was reflected by participants, however, the ways in which participants appeared to rationalise or come to terms with this dynamic differed.

For some participants, this push to produce at all costs set the tone for the perceived priorities of the company and workplace, whereby individual employee needs and experiences were secondary to serving the 24 hour a day production operation. As one participant described,

It's a 24 hour operation, so there needs to be that time for handing over information. I can understand how that [12 hour shift cap] would be important to someone else, but I'm realistic. The mine has got to keep running, so I guess depending on your position and your experience it would be nice to have it that way, but it's never going to be that way so it's pointless even wanting that. If you want that, you're in the wrong job. (1)

Here the participant reflects on the effect of the production-oriented culture on the mindset of the worker, whereby changes being posed to be more adaptive to employee needs are seen as unrealistic and pointless to want. This reflects the theme of *Take it or leave it* at a deeper level, as the participant's comment captured the sense of powerlessness and pressure to meet the

demands of production, or else quit and leave their job, as compromise was deemed out of reach.

Participants also described an association between the push to produce at all costs with safety, where production was at the cost of taking the time to do things safely. In one case, a participant described witnessing colleagues taking risks in order to reduce time,

I've seen supervisors do it too like do things very quick, quickly running under a machine that was running or something like that. That's a no-no, things like that just to do things a little faster. It made me think I'm going to start seeing people get hurt more, and I may as well, I might as well end up hurt. (20)

The participant reflects here one associated cost with the push for production, whereby the pressure to meet targets flows down from the corporate level, ending up with workers on the ground taking risks in order to do things a little more quickly.

Another key aspect of the theme *Take it or leave it* was the personal responsibility placed on employees once they had made the choice to 'take it', that being, to work FIFO and adhere to work expectations placed on them. In this way, participants observed a shift of responsibility that became 'your choice, your responsibility'. Participants described the characterisation of particular mining sites that over time had developed a reputation of being particularly difficult and unyielding. Such sites had earned nicknames, typically a play on words of the site name to depict difficult working conditions, or, the frequency of incidents and injuries. However, participants noted that even these sites did not have issues hiring staff, reflecting the power of mining companies to forgo responsibility for improving conditions to a degree by putting the responsibility on employees to cope with the conditions through their choice in taking on a role. This element of choice seemed to shift the responsibility from the mining company to the individual, as once the person had chosen to accept a job, it was then their responsibility to make it work (for example, accept known safety risks) and meet the demands of production. Illustrating this, a participant commented,

It can look really good on paper and you can get people to take things because it looks good on paper, but don't use that as a reason for why things are shit once people are there. "Oh, they accepted those conditions, they agreed, they signed up." Yes, they did, but who wouldn't? People are desperate. It doesn't mean you've put them in a good place, it just means they had to accept because they had nothing else, or it appeared really good. Then they got there, and then they realised. (4)

The mentality this participant reflects illustrates the shift in responsibility for employees coping with the demands of the work and meeting production targets. Participants observed this as contributing to the sense that they must *Take it or leave it*, further reinforcing the inflexibility and uncompromising sense of what engaging with FIFO meant to participants.

This was further reflected in participants' comments regarding the rules and regimentation that exist on mine sites, but also in the way of living the lifestyle,

I don't know how to put this, but FIFO can almost be very prison like. You're very regimented. My life went from being quite non-regimented to this very, regimented lifestyle that can be with FIFO. A lot of waiting around, a lot of flying. (10)

The comparison of FIFO to being imprisoned that the participant makes here is insightful in describing the restriction and structure of living FIFO, which has become an accepted component of the lifestyle. Adhering to this structure and operating within the rules perpetuates the sense that the conditions of FIFO work are not able to be changed or adapted, meaning employees must take it as it is or leave it for someone who will. This inflexibility, with rules and regimentation, perceived by participants was also described to foster avoidance in looking at how things could be changed,

Other parts have become really unnecessarily bureaucratic. But as well the issues and lessons they need to be learning, they never learn. And it sort of like ... you feel like you're a dog just chasing your tail, when there's a simple solution in there. The main problem is always the people ... it's the lack of people listening to the issues, to what goes on and then people that are like, it's just nothing, it'll go away. And it never does. (2)

Here the participant describes the resignation to the way FIFO is and how the industry operates, with continuing avoidance of the issues that are in need of attention and change. Participants reflected that this avoidance promoted a sense of a frustrating cycle, a dog chasing its tail, when attempting to navigate the rules and regimentation of the industry. This was seen to perpetuate the inflexibility and uncompromising nature of FIFO, confirming for participants they must either *Take it or leave it*.

The 'FIFO type'

A subtheme of *Take it or leave it* is *The 'FIFO type'*. This subtheme captures the distinct boundaries expressed by participants regarding the type of person that is suitable to engage in FIFO work. In this way, the inflexibility and rigid demands of FIFO culminate in the belief that

only a particular kind of person is able to be successful and cope with FIFO. As one participant describes, if you are not coping, then you should not be doing FIFO work,

To me that's [support services] not important, but I can see how that would be important to others. I'm sort of like harden up and work it out, that's my attitude sort of thing, but I know other people ... Look, if you can't deal with it then you're not in the right job basically. (1)

As this participant reflects, by not being able to deal with the demands of FIFO work, employees are left with no option but to leave the industry. The acceptance of FIFO being inflexible and unchanging was seen to perpetuate this dynamic of the employee having to be the type of person who could fulfil the demands of FIFO work. One participant identified the ability to detach from their work as being key to suitability, "...a lot of people who survive really well are very much, 'That's my job. I do my job and I do nothing else and then I walk away and go home,' and they just turn off and forget about it." (4) This type was further characterised by this participant, who described the type as being someone who simply knows what to do and does it,

There's just a personality type. None of this stuff is really going to make a difference to someone who's walked into FIFO. As I said, you can know things, but then to experience them is different. I've gotten on planes and wound up in the middle of foreign countries and just gone to work, no idea, didn't even know where I was. It's a personality type that suits FIFO better and all the advice they give you about like financial things, strategies, if you don't know how to financially plan at the age of 25 or something, then a little pre-commencement training is not going to help. (4)

Interestingly, as this participant describes, the provision of training and assistance for people doing FIFO was not perceived to be effective, instead, someone must naturally have a personality type that can meet the demands of FIFO.

The idea of a naturally suitable type of person for FIFO was also identified for women, including an additional way of being naturally able to adapt to a male dominated work environment,

I mean if you're the sort of person that chooses to do this job, you're already a certain type of woman. If you're a professional going into this environment, you've already gone through a degree where you are one of the few females in the degree, so you've probably either got a big self-confidence or have learnt

how to adapt your communication and social skills to be in that environment [...] I drink a lot of beer and it sounds very strange to say that as sharing something, but that came about not necessarily because I enjoy a whole lot of beer, I actually like some crafty beer, not the cheap piss, but when you're in an environment where the culture is 'let's go down to the pub and have a pint'... It's not always like that but you can rock up and grab a wine and people give you a bit of a ribbing but they'll leave you alone after a while, but it's easier to socially engage if you're doing the same thing as they are. (5)

Here the participant describes the characteristics of women who fit *the FIFO type*; having confidence, navigating male dominated degrees, and adapting their social and communication skills to fit with the masculine mining culture, even through particular drink choices. In this way, the type of women suited to FIFO must meet further demands to that expected of men who FIFO, in addition to the requirements participating in a FIFO working role encompasses. Participants conceptualising the ability to make FIFO work as being limited to a particular type of person may foster the culture of *Take it or leave it*. For participants, *the FIFO type* represents a consequence of the acceptance of FIFO work being inflexible and uncompromising, where men and women must adapt to the conditions and take it as it is, or else leave it.

Money doesn't buy happiness

Participants identified one of the main draws to the FIFO lifestyle was the high salary, particularly in comparison to what could be earned for a similar job in a metropolitan area. This allure to earn money was however conceptualised by participants to also be a downfall, keeping people working FIFO even if they were unhappy, struggling, or found little meaning or purpose from their work. Participants expressed that the money earned while doing FIFO was akin to a blessing and a curse, it could provide the potential to assist in setting up a life, buying a house, allowing travel or savings, and it could also entrap someone into a lifestyle where they could not find happiness. As this participant described, money being the reason to engage in FIFO was usually not enough,

The money's good, but your money doesn't change your physical ability to deal with the circumstances of work, life balance. You can only think, "Well, it's for the money," so much before the money really doesn't do much for you. (4)

Here, the participant speaks to the rationalisation of working FIFO for the money, describing the tendency of people working FIFO to focus on the income gained and view this as compensation for the difficulties of the lifestyle. However, this approach to working FIFO was

conceptualised by participants to be short lived, as the money gained from the work was not enough to promote coping with the nature of the lifestyle.

Another aspect of this theme was the potential to get trapped in continuing with FIFO, to keep up with financial commitments. A common pattern described by participants was to start working FIFO for the money, and then make large purchases on items and property that would otherwise be out of reach. However, this was then seen to trap a person in continuing FIFO, in order to keep up repayments or their lifestyle. As one participant described, purchasing things sometimes became an additional stressor of the lifestyle,

Earn loads of money and all the rest, but you've also then got to be sensible about how you live. You obviously live to your means, and going and buying jet skis and boats and houses and all the rest of it, the next minute you've got another level of stress on. You've got financials. (19)

As the participant identifies here, the responsibility to manage finances is placed on the individual, and in the context of the unpredictable nature of the industry which could see circumstances change one minute to the next, the importance of being sensible with spending is highlighted. The allure of money, and viewing money as the sole benefit gleaned from FIFO and thus making large purchases, was seen by participants to contribute to the likelihood of becoming trapped in continuing FIFO in order to meet repayments of debt.

A further dimension of this theme was identified as money replacing purpose. The approach to FIFO as being centred on income was seen by participants to cultivate stagnation in their careers. As this participant describes, the loss of purpose had further impacts observed in workmates,

And then they never seem to progress from there, and I wonder if maybe they lose the inspiration to climb the ladder because they know that they're only going to get to a point and they're going to throw it away anyway. I wonder if they forget about the career and they just concentrate on making money, which to me is not a good way to go about going to work away. Because that's when you start to feel like you're not worthy and all that sort of stuff, and that's when you get the depression in there and stuff. (7)

As this participant describes, the preoccupation with money for people working FIFO is seen to be associated with detrimental influences on wellbeing and a sense of purposelessness. In this way, the money associated with working FIFO can be a downfall of the lifestyle, despite it being described as the primary allure to begin working FIFO. In line with this, some participants

commented on the lack of meaning derived from work roles that they were participating in only for the money earned,

It probably does come down to the environment, I never really felt a sense of I guess even happiness. Whenever I was up there, because I didn't get a love for the work I was doing. The first few years I did, but then it just kind of became like so many people, this is a well-paid job, this is giving me that income. Money really was the motivator, now it's not, I'm the complete opposite. (20)

Here, this participant describes the impact of money replacing purpose, where the lack of meaningful connection to work limited the experience of happiness. As money was the motivator for work and also the benefit of continuing the work, money remained the primary reward for participating in FIFO, although this money could not guarantee fulfilment and happiness.

Sprint and a sudden stop

The theme *Sprint and a sudden stop* captures participants' experiences of the FIFO lifestyle and the disruption of the transition from site to home to site again. While on-site, participants described working a minimum of 12 hour days, with additional time needed for transport to and from their accommodation camp to the work site, leaving only a couple of hours each day to eat and socialise. Participants described the work they engaged in as demanding and fatiguing, and saw getting adequate sleep as a priority. This created a cycle on-site for participants that was symbolic of a sprint, always on the go, rushing from one scheduled item to the next. The nature of work on-site was depicted as regimented with a specific routine. However, when participants described the transition to flying home for their rostered time off, the pace and rhythm of life was felt to drastically change. In this way, the fast-paced sprint of on-site life was followed by a sudden stop during their time off. Participants' sense of the sudden stop was linked to the contrast of home life being generally flexible and unstructured. Participants noted the impact of this sudden stop, describing a sense of listlessness, or aimlessness, as a consequence of going from complete structure to complete flexibility.

A key aspect of the theme *Sprint and a sudden stop* is disruption, as the nature of working FIFO includes constant change, preventing an ongoing rhythm or routine. Participants described the constant changing between home and site environments as taking its toll,

For a lot of people, it's the disruption. For my role it was hyper-intense 14, 15 hour days, plus you're on the phone [on call] at night, and then you come back and you've got nothing. I'm single, and my family works at 9 to 5 jobs and stuff.

You go from a million things at once to nothing and your body just doesn't adapt well to that, I don't think. (4)

Here the participant describes the disruption of the FIFO lifestyle, and the associated impact. Fatigue was identified by participants as being a particular challenge, where intensive work days and general transience including regular flights were observed to be key contributors. Participants expressed the need to be self-reliant and directed in their time off in order to keep a sense of purpose, however, the disruption of constant change was seen to make this increasingly difficult.

Another core aspect of *Sprint and a sudden stop* was being out of sync, as engaging in a FIFO schedule is unique and does not often fit with the regular routines of family, friends, and community activities. Participants noted that being out of sync with the steady routines of others around them exacerbated the sudden stop of their FIFO lifestyle, as they were unable to participate in life at home in seamless way, one participant commented, *"You're back in Perth and you're not at the same time as your partner, you might be working, and your friends can be working. A bit disjointed. It doesn't always work nicely."* (10) As this participant describes, a sense of being disjointed with the schedule of those at home contributed to the challenges associated with being out of sync. Further to this, participants described feeling left to their own devices while at home,

When you go home, your friends aren't doing FIFO. Or your family, they all have normal Monday to Friday, nine to five jobs. So, you're left to your own devices till the weekend when you know they can come and join you. When you're rostered off and it's a long weekend or public holidays, it's hard to do business. (3)

Being left to their own devices was observed by participants to contribute to the sense of the sudden stop, where the structure of their life was not tethered to occupation, promoting this sense of aimlessness. It was also noted by participants that their FIFO roster meant being at home for a limited amount of time, and there was a need to fit in appointments and other personal business before leaving again. Being out of sync with the dominant work schedule, also meant that participants often had to organise things well in advance to ensure the opportunity to complete tasks during their break, or else wait until the next swing a week or more later. For those with families, the disruption characterised in the sprint and a sudden stop of the lifestyle was seen to extend to the family dynamic,

The only downside to it, though, is that it does disrupt, I suppose, family routines, because you're home one minute and then you're not. Especially with

young kids, it's kind of hard for routines and that because naturally you come home and you upset everything and want to do everything before you leave.

(19)

The disruption of family routine was identified by participants as being particularly challenging when raising young children, with the person participating in FIFO wanting to be involved in the family activities but by doing so also regularly disrupting routine. The difficulty in being a part of the family, but operating almost as a separate temporary unit, was described by participants as being disheartening and difficult to manage,

They come home and the family that are left at home form their own little family and they learn to cope without the person that's being away. When that's a two week break, a two week cycle, it tends to be okay. But when they're longer, it's harder to break and I think for that person to get back into the family circle. (3)

Here this participant highlights the separation and independence of the family unit from the person who is participating in FIFO, formed out of a necessity to cope while a member is away for extended periods of time.

Another aspect of this theme is distractions, as participants reflected on filling their life with distractions while at home. This strategy was described to help address difficulties experienced with the sudden change in pace, combined with the difficulties in engaging with other people and activities that their schedule was out of sync with. As one participant commented,

Unless you're going back to your family where you're building things and have obligations and a routine, then you don't really come back to much of anything. You come back to a bunch of sporadic ... I usually came back for a list of things to buy and I'd go to the shops like five or six times or I'd just get drunk, so that was pretty much it. (4)

As this participant describes, spending money and drinking was a common strategy to fill their time at home in the absence of structure and purpose that was found on-site. For participants, engaging in drinking or purchasing items were meaningful in that the activities filled their time, however, the activities themselves were not deemed meaningful or satisfying. Another participant commented on the distractions as not only to fill time but also to distract from things that were missed out on while at work,

I've definitely seen people become a lot more withdrawn or ... just not really exploring outside of FIFO on their breaks sort of thing. Having set things, you get home, you've been drinking for a couple of days or whatever and partying hard and then getting ready to go back to work. Mostly it's guys, like single guys, I just see them not really ... developing socially, and sometimes becoming a bit more reclusive. Because you do miss so much. You learn to really switch off your emotions from what you're missing out on at home. (7)

As this participant explores, the disconnect from friends and family at home and missing out on events and time spent with loved ones was identified as a key challenge for people living FIFO. So while participants described challenges with sudden stop and days at home that required 'filling', being out of synch and difficulties in maintain connections with friends and family appeared to contribute to a sense of isolation. The emotionally fuelled experience of feeling socially isolated, although common, was not described as becoming easier to cope with over time. Participants commented that instead, over time there was a tendency for people who lived FIFO to withdraw, and mostly socialise with other people who lived to a similar schedule. Participants commented that finding meaning and purpose away from work was difficult, and the easier path was to shop, drink, and socialise with people who FIFO to distract from what they were missing.

Ultimately on your own

Participants expressed that a particular challenge with working FIFO was the sense of isolation (both socially and geographically), and loneliness. Participants often reflected that they lived their lives somewhat alone, and it was important to look out for their own self-interests as they must be self-reliant and self-dependent. This is captured in the theme *Ultimately on your own*. An aspect of this theme was isolation, as participants described challenges with physical, geographic, and social disconnect and distance. This isolation felt by participants was related to the structure of FIFO being transient and remotely located, as well as simply being physically away from loved ones. Participants made the distinction between being able to communicate with their loved ones, and being physically present,

Not being able to touch and all the rest of it. Talking, communicating is fine, but you can't give your baby a cuddle or your missus a cuddle or whatever. It's pretty difficult if you're.. If something happens at home, that could be another one too, is that you've got no control over what's happening at home. You can't deal with everything that you can when you're at home. If something happens it's out of your hands. (1)

As this participant describes, the geographic distance from loved ones contributes to the sense of isolation. Verbal communication can be achieved and participants reflected that this was important to be able to do regularly, however it was the physical presence that was missed. As this participant also reflects, there are difficulties in navigating relationship roles when geographic distance limited their involvement or capacity to assist. In this way, the isolated nature of FIFO contributed to both the person working FIFO as well as loved ones at home being on their own, needing to cope individually and independently of one another. Participants further described the isolation as contributing to feelings of loneliness,

The isolation factor. Even though you're with people 12 hours of the day, these are the people you spend more time with than your friends and family, I still had this sense of loneliness quite often myself. Especially when you came home at the end of the day and are very much on your own the rest of the time and then even though you weren't really awake for very long before you had to go to bed because it's such a long day of work, I think that isolation was a strong thing for me. (20)

Here, the participant reflects the dynamic where despite long hours spent with work colleagues, the isolation from loved ones at home geographically and physically still promoted a sense of loneliness. Feeling socially isolated was also described as being a factor due to the long work days and decreased energy for engaging in socialising, meaning people who FIFO spent long periods of time on their own. Difficulty in getting to know people on a mine site appeared to exacerbate the sense of loneliness, for example,

When I first moved up here, I found it quite hard to get to know people. Yeah, it took me a long time to make friends and really settle here, so it did feel quite isolated pretty much the first year or so here. Yeah, I think you have to work quite hard to, yeah, to get to know people here. Most of my friends are ex-pats as well, so. That was quite hard. Getting to know the terrain is hard. (17)

The long work hours and decreased time and energy for socialising were described by participants as contributing to difficulties in meeting new people and forming connections at work, especially when they first started in a new role, team, or roster. The comments by this participant highlight an underlying assumption that those participating in FIFO roles will be able to cultivate their own social network in this environment, however, it is described by participants to be difficult, as the time demands of shifts and site environment limit social engagement. Another participant further described this challenge, as for some the work undertaken can be isolating in itself,

You really can become isolated very easily if you choose, well not even intentionally. It can just happen, and you fall into a routine where you can have little or no contact with people, particularly if you're an operator and you run a machine on your own for 12 hours a day and then you come back to the village and you're on your own again. If you're not eating with a group or engaging with a group socially. That would probably be the biggest one. (15)

Here, the participant reflects on the isolated nature of FIFO work roles, particularly those that are performed individually and not within a team environment. The long hours and fatiguing nature of the work, difficulty cultivating new friendships, being away from loved ones at home, and work roles that are isolated can contribute to the sense of isolation and being *ultimately on your own*.

Participants also described the need to protect themselves; this appeared to be in response to doubt that anyone besides themselves had their best interests in mind. In this way, participants noted that they were ultimately on their own, as it was seen as unwise to trust other parties to do what is best for them. As an indicator of this, participants reflected on the tendency for people who worked FIFO to get 'trapped' in the lifestyle, by overcommitting financially and needing to continue to earn the high salary wage that FIFO roles offer, As one participant described,

Because the bank gives you as much money as they can throw at you when you're working away and you're earning \$150,000. And that's fine, it's great for the bank because then you're trapped working away earning that money and paying all that interest to the bank. But what the banks definitely don't help you with is an exit plan, and something that you'd be comfortable with sort of thing. (7)

Here, the participant reflects on the need to protect self-interests, through the responsibility of the individual working FIFO to manage themselves, have a plan, and in particular a strategy to exit FIFO. Participants commented on the need to be dependent only on themselves, knowing that there was limited support surrounding them to assist them in navigating the FIFO lifestyle. This contributes to participants' sense of ultimately being on their own in their experience of FIFO.

Participants also commented on their perception that mining companies do not necessarily look out for the best interests of those they employ. For instance, a participant commented on this realisation of the need to protect self-interests in relation to starting a family,

I was quite amazed because I actually assumed that mining companies would give paid maternity leave to their staff. To me that was the obvious thing to do because they've actually thrown their career away to start a family, which in theory for the better of the community. And when I found out that there was no paid maternity leave, it was just the government, and they were only up to 12 months. Yeah, that to me was a real wake up to think, 'No, you're definitely on your own. There's no financial support to help you do something after you've had a kid.' (7)

As this participant reflects, the understanding of limited support structures promoted a sense of being *ultimately on your own*, motivating participants to focus on protecting their best interests. This example by this participant also captures another example of an additional challenge experienced by women who FIFO. For women who are contemplating having children, participants reflected that companies appeared to expect women to give up their FIFO role if they wanted to have children, and should not expect to be given support or an opportunity to return.

Hyper-masculinity breeding silence

Participants described a hyper-masculine site culture that was seen to discourage open discourse about emotions, struggles, and needing support. Within the context of this hyper-masculine culture, needing support or experiencing hardship with the work or lifestyle equated to weakness. The hyper-masculinity of the culture championed strength and endurance, which participants observed to encourage the upkeep of a macho façade. In particular, participants reflected on the silencing impact of the hyper-masculine mining culture, which created an environment where not coping with the lifestyle was difficult to discuss or admit.

A key aspect of this theme was avoidance, as participants described the hyper-masculine “...all proud, and macho, and tough, and all of that...” (5) dominant expectation of people operating within mining. This was described to be inherently gruff and avoidant of emotions and problems, as one participant described,

Right and you'll be fine. Yep just get it done mate, you'll be fine. Yeah, that's just how it works. That's their favourite saying you know, especially in construction. That's the key words they say, Mate just get it done. Mate you're fine. Just get on with it. You'll be done in two weeks you know or like however long left you got in your swing. (2)

As this participant illustrates, the tendency towards avoidance of emotion and related struggles was inherent in the hyper-masculine culture, and the expectation to 'just get on with it' was reiterated through the language used as part of this culture. In this way, the hyper-masculinity of the mining culture promoted the avoidance of emotion in the social dynamics of on-site life.

Another key aspect of this theme was silence. Participants identified the silencing nature of the hyper-masculinity embedded in mining culture, and the impact it had for individuals. This silence was reflected by participants to be experienced at a personal level, through a sense of being unable or restricted from reaching out to others,

I struggled in silence like, when I was doing it I was really unhappy and I was.. I struggled quite badly from it. I cried in my room a number of times. Um, Yeah I really sort of struggled really badly with it. But, it took me a while to get out.

(2)

As this participant describes, this sense of silence felt by those operating in the hyper-masculine mining culture was seen to exacerbate existing struggles. Another participant commented on the culture limiting personal conversations,

Anyone who wanted to talk to someone on a more personal level and because of the work environment, personal conversations don't generally go too far. There's not much room, a lot of men keep things to themselves, so that's what it is at the end of the day. (20)

This participant describes the expectation of men to keep things to themselves, characteristic of hyper-masculinity as part of the work environment that sets the tone for the working culture.

Another dimension of this hyper-masculinity was a tendency towards not taking safety culture seriously; a seeming invincibility and technical infallibility of masculinity that seemed to contribute to risk taking and heightened self-assuredness. Participants reflected that on-site, people would see short cuts occur, for example,

I started thinking more about how dangerous the environments are becoming, how they're trying to put more safety on top of us. As in trying to make guys do more things that were doing risk assessments and things like that, but then all that extra paperwork started making people take more shortcuts as well. (20)

Here, the participant comments on the hyper-masculine culture in relation to safety on-site, whereby safety was perceived as an inconvenience, and instead of being closely observed was

responded to by using short cuts. Participants noted that when these short cuts occurred, it was culturally more acceptable to not report them, even if they were dangerous. This use of short cuts that go against best practice for safety, appears to be a product of the hyper-masculine sense of invincibility. In this way, the hyper-masculinity embedded in mine site culture can be dangerous emotionally, as well as physically.

No way out

Participants' recognition and experience with the culmination of the hardships associated with living FIFO, and the sense of becoming trapped and alone in the cycle of FIFO, is captured in *No way out*. This theme focuses on the worst case scenario identified by participants, whereby the hardships of FIFO are seen to compound and leave a person looking for an escape. Suicide was identified by participants as part of their experience with FIFO, in that the longer an individual was engaged in a FIFO role the more likely it was to know of a suicide death,

If you're there longer than maybe three years, you'll know of someone who's committed [sic] suicide. I've worked with people who have committed [sic] suicide over the years. (4)

Here this participant describes the expected nature of suicide in association with working FIFO, reflecting that suicide is not so much an if, but a when. Participants reflected on the burdens associated with FIFO, and how these burdens were also difficult to work through due to the hyper-masculine mining culture limiting the open discussion concerning struggles,

I've heard a lot of things from the guys up there people that they've known who have passed away or committed [sic] suicide, things like that, it was just purely everything the burden on themselves financially or the separation from their family really got to them. (20)

As this participant describes, financial burdens and being separated from loved ones were core issues that were identified in relation to cases of suicide. Participants made connections between becoming trapped in the FIFO lifestyle, and needing to continue working in order to meet debt repayments, which increased the likelihood of people accepting positions and rosters that were unfavourable, increasing the time spent away from loved ones. Participants also reflected on the tendency for people to suicide on-site, as opposed to at home,

It's also a closed group and people tend to kill themselves on-site because it's away from their family. It's where they're the saddest, it's also where their

families are least exposed, I think it's because their family's least exposed to the pain, so they can kill themselves there. (4)

As this participant reflects, the pattern of suicide deaths occurring on-site was thought to be connected to the isolation and loneliness felt on-site, as well as an act to protect family and loved ones. The participants raised concerns regarding the policy surrounding procedures when suicide or death by injury did occur on-site,

It can't be something that's debatable based on price or efficiency because that's what does happen, 'Oh we can go back to work, he died six hours ago and he was your mate and you've been working with him for six years, let's go back to work,' which is almost what happened at our site, because our managers being contractors have a contract to meet and they have to meet the aspects of the client or destroy the company. (4)

Here, this participant explores policy and regulation gaps, as well as the inhumane demands put upon workers in a mining contractor context. This is linked to the previous theme *Take it or leave it*, and specifically the aspect of production over people. Participants described difficulties in balancing the demands to produce at all costs, with the need to be reasonable in being flexible to incidents and the needs of people involved emotionally and psychologically.

It's a man's world after all

The theme *It's a man's world after all* captures the fundamental hyper-masculinity of mining culture, and the problematic associations this has for women in this space. The assumption of men's experiences of FIFO are hegemonic, while women's experiences of FIFO are conceptualised as the other, where women in mining are considered visitors to the space that is owned by men. A key aspect of this theme was the gender proportions on mine sites,

I think physically on-site there are times when you can feel quite outnumbered, you know, men versus women. For me it's not so bad, because I'm an older married woman, so it's not an issue for me, but I know for some of the younger single girls, they can feel quite uncomfortable or hoping they're not confronted. (11)

The gender proportions on-site were seen by men and women participants to contribute to the hyper-masculine atmosphere, where women described feeling outnumbered, which informed a perception of potential threat. This was further described to make the mining site uncomfortable, with women needing to pre-empt being approached or confronted.

Another key aspect of this theme is the known culture of harassment of women. Participants, both men and women, described the challenges of the hyper-masculine environment women must navigate when engaging in a FIFO lifestyle. For example, one participant gave a sense of women's experience on-site stating, "Well, men don't get their bras stolen out of the laundry" (5). Inherent in the mining environment was a known culture of predation and harassment of women, as another participant explains,

As a guy, you can be trained to never say any kind of sexually, discriminatory thing ever, which most guys will do, they're not going to say anything particularly bad, but then there's a young, hot 20-year-old girl in a pair of tight jeans, every guy there is going to look, every guy is. That's going to happen, that'll happen in [place], that'll happen in [place], that'll happen pretty much anywhere. It happens, but it happens to a greater degree on mine sites because you've got like 25% women and then ... You're going to feel it more because there's more eyes, more guys and a lot more power. (4)

Here, the participant identifies the power dynamics inherent in the male dominated culture that are amplified in the mine site environment due to the gender proportions. Despite code of conduct training, the atmosphere of predation and observation of women is seen to persist. The broader social dominance of men identified in the Australian culture is observed here to be more intensive in the mine environment specifically, culminating in a range of implications for women. For instance, participants spoke about the need for women to actively put social barriers up,

They're still harassed. There are company talks about it. [Name] is two different people when she's at work. She's been to my house and my partner's house, we've had dinner with her, and she's quite a lovely young lady, but when she goes to work, I see the change in her, because she has to put this massive barrier up to combat the sexism. (10)

Here the participant describes his observation of a woman colleague having to alter her way of engaging with others in order to protect herself from harassment at work. Women's strategies for combating and navigating this culture of harassment also included groups of women. As one participant describes, women were seen to band together out of necessity in order to combat particular cases of harassment,

They talk about old boy's networks, well we had an old girl's network who worked under this particular person, any females that worked under him,

women only lasted about a year in his team before they asked for a transfer. Any females that were in the team often banded together very, very tightly to support each other, and as well any prior members from that team gave their phone numbers to the newbies in that team to call if they had issues. I, on the odd occasion, had a girl in tears that I hardly know because she'd been given my phone number through this tree. (5)

As recounted by this participant, women supporting other women in cases of continued harassment and discrimination was seen as fundamentally needed in order to cope. This further illustrates the prevalence of the hyper-masculine culture, whereby men were seen to remain in positions of power despite multiple women experiencing mistreatment. This reflects the different ways the hyper-masculine culture is experienced for women, which was observed to change the challenges with working FIFO,

What I would perceive as you know, spending more time with my family is a key issue, a girl might think um, oh, 'not having men doing horrible things to me' is more of an issue. So I can definitely see how there's an exception because it's a male dominated industry. Men aren't going to sexually harass me. (2)

As this participant notes, the mining industry is dominated by men, which necessitates women needing to negotiate an environment where they are potentially under threat. This provides insight into the missed acknowledgement of these issues that are seen to stem from the same hyper-masculine culture that widely acknowledged issues associated with FIFO also stem from.

A further dimension of this theme was the fundamental gender based assumptions placed on women, specifically cultivating a sense that women are limited. This was described by some participants through the assumption that women must earn, or prove, their place and expertise,

There might only be one or two women out of a team of like 100 say, working on a particular area during a shutdown, but those women are so damn good at what they do that most guys are like, "Shit, okay". (6)

Here, this participant describes how women's expertise and skill are met with surprise, illustrating the assumption that women are not given this acknowledgement until it is explicitly demonstrated or earned. This illustrates the aspect of this theme that women are limited, as the few women who make it on the team must be such a high level of ability in order to be permitted. This aspect was further identified through the belief system that women and men

had prescribed work roles, and that women held a 'shelf life' for work, up until they had children,

There is definitely a bit of a perception of girls have kind of a shelf life until they have children. But yeah, and there's definitely like it's really, I've never worked with anybody male in HR, it's really pigeon-holed a lot of the roles on-site. And that's really hard to change. You can't make people want to do stuff that's really hard to be the first man or the first woman in a role that's typically done by somebody who's the opposite sex, but yeah. (17)

As described by this participant, the construction of women as limited also incorporated an end date, where women were expected to leave work once they planned to have children. This is linked to the previous theme *Ultimately on your own*, as women are expected to give up their role and not expect an opportunity to return. This reflects specific discrimination for women in this environment, as this assumption was specified for women only. The prescribed roles for men and women was seen to further perpetuate the boundaries that women must operate in, whereby women were permitted to visit the mining space if they were especially skilled, were expected to fulfil particular roles, and then leave to have children. This narrow scope of women's involvement in the industry may contribute to the perpetuation of an inherently hyper-masculine culture.

Another dimension of this theme was that women were visitors in a man's space. In this way, men's experiences were hegemonic, whereas women's experiences of FIFO are seen as add on or additional to the standard experience of FIFO. This was illustrated by participants highlighting the various programs and efforts made to integrate women and assimilate their presence into the general mining culture. This further validates the existence of harassment and discrimination issues, as these are needed to be specifically targeted through policy and regulation in order to cultivate change. The efforts made to specifically support women were identified to be prompting change,

If you had to ask me twenty something years ago when I was working underground with a geo, all the sexist comments and that. See, that's all gone here. We don't have that anymore. And anybody that does come on board that's new or doesn't know, you know, the guys will pull them up or we pull them up and they pretty much get all that training before they start work. So they know the company's expectations and what our values are and you know, how we live by those values. (3)

As this participant describes, the policy and regulation efforts by mining companies were seen to have an impact on overt sexist behaviours, with clear guidelines concerning what was and was not acceptable. However, the changes were observed to target these overt and unambiguous behaviours, while the more subtle perpetuation of women as visitors to mining continued. This was illustrated through programs identifying only a small number of women who had proven themselves worthy of promotion despite the target purpose of the initiatives being to elevate women,

My company has a commitment to putting women, especially management positions and training them. There were a couple of people, a couple of people that have proven themselves and the company are paying for them to do some training and getting some mentoring so those women can step up into management roles eventually. I have, giving them the opportunity to come back to work after they've had children. That's a big thing, yeah, that's a big thing. (3)

As this participant further describes, the opportunity to come back to work after having children was considered a significant shift. While this appears to signify a move in the direction of valuing women's contribution, it may also still reflect that women are visitors, as returning to work after having children was posed as a special opportunity, a privilege. In this way, the efforts to promote women and support women, were part of a cycle that ended back with the hyper-masculine culture of mining,

I think from a HR perspective, females definitely get support. Whether it be harassment in the workplace or any of that sort of things. It's not on, it doesn't get tolerated. It may have used to, it doesn't anymore. In that respect, definitely on par, same opportunities. I think there is still that culture that it's a man's environment, no doubt about that. (1)

Here this participant illustrates the cyclical nature of the culture of mining, whereby there is a known culture of harassment and discrimination, efforts have therefore been made to change this, but ultimately the culture remains *a man's world after all*. Participants further discussed these efforts to cultivate change for women and other groups at work being met with resentment,

There's a lot of support groups for the ladies on-site and the Indigenous crew. But I think the general opinion, and certainly my opinion is that it's right, gone right over the top and just makes the blokes, like the blokes are just sittin' there

going like 'aw righto, off you go to your support group, we'll continue to do the work'. I think it's causing destruction, more destruction than it is assistance.

(14)

As this participant's comment reflects, efforts to support women on-site can be met with hostility, and used to further delegitimise women's work and contribution. Men's experiences are hegemonic, while women's experiences come with a clarifier. This constructs women as visitors, who must earn their presence and inclusion. In this way, the gender proportions on-site, a known culture of harassment and discrimination of women, a belief that women are limited in their capabilities, and are visitors to a man's environment, constitute a cycle that contributes to the maintenance of the hyper-masculine mining culture.

9.4 Handover

A range of challenges associated with participating in a FIFO lifestyle have been explored in this chapter. These challenges encompass inflexible work conditions, risks for mental health, and in particular a culture that was identified to be a core obstacle to open communication and connection, supporting wellbeing, adherence to best practice safety procedures, and equal treatment of women. It is recognised that efforts have been made to provide support for people working FIFO, but these efforts have been applied to the situation rather than targeting the fundamental challenge of the hyper-masculine culture. This illustrates a top down approach, which limits the contextual relevance that bottom up approaches provide, and suggests a need to target change through multiple levels. It is evident that contextually relevant strategies are needed in order to develop an approach to promoting change for people who FIFO, and this will be the focus of the next chapter.

Chapter 10 Phase Two, Objective 3: Identify Preferred Supports for Living FIFO

10.1 Pre-start

In this chapter I report on the support context and strategy related themes identified in participants interviews through thematic analysis. These themes include ideas about how the lifestyle could be, what conditions would be beneficial, and how FIFO could move forward. As part of the interviews, a card sort activity was conducted using the ten most commonly referred to useful sources of support from participants in the survey. In accordance to the design of the overall project, these findings are nested within the quantitative findings in order to provide further explanation of Phase One findings, and explore positive operationalised ideas of how to make FIFO work, work.

10.2 Card Sort

During the interview participants were asked to rank order a set of ten cards, each representing a kind of support. These were the ten most commonly referenced supports by participants in the survey, so contextually each of these support resources were deemed important. The activity for interview participants was used as a prompt as well as a way to ask in depth about the survey findings. Each item's overall position was calculated by summing the rank positions of that item by reverse scoring (where Rank 1 = 10, Rank 2= 9, Rank 3 = 8, etc.), and ordering the items from highest to lowest score. The chart below (refer Figure 21) summarises the frequency each card was placed at each rank position (1 being the most important, 10 being the least important).

As represented in Figure 21, support from friends, family and significant other was ranked the highest importance at Rank 1 by 50% of the participants, and at Rank 5 or above (more important) for 95% of participants. This was followed by reliable communication facilities being rated Rank 1 or Rank 2 by 45% of participants. These items are related in that in order to engage with support from friends, family and significant other while working on-site, communication facilities like internet and mobile phone reception are vital. Following these items, work conditions such as work day and roster caps, and the facilities provided on-site were ranked the next highest overall. Thematically, this illustrates that participants mostly identified support from their community and social network to be of highest importance, followed by the quality and suitability of work conditions and site environment.

Card Sort items by Rank Frequency

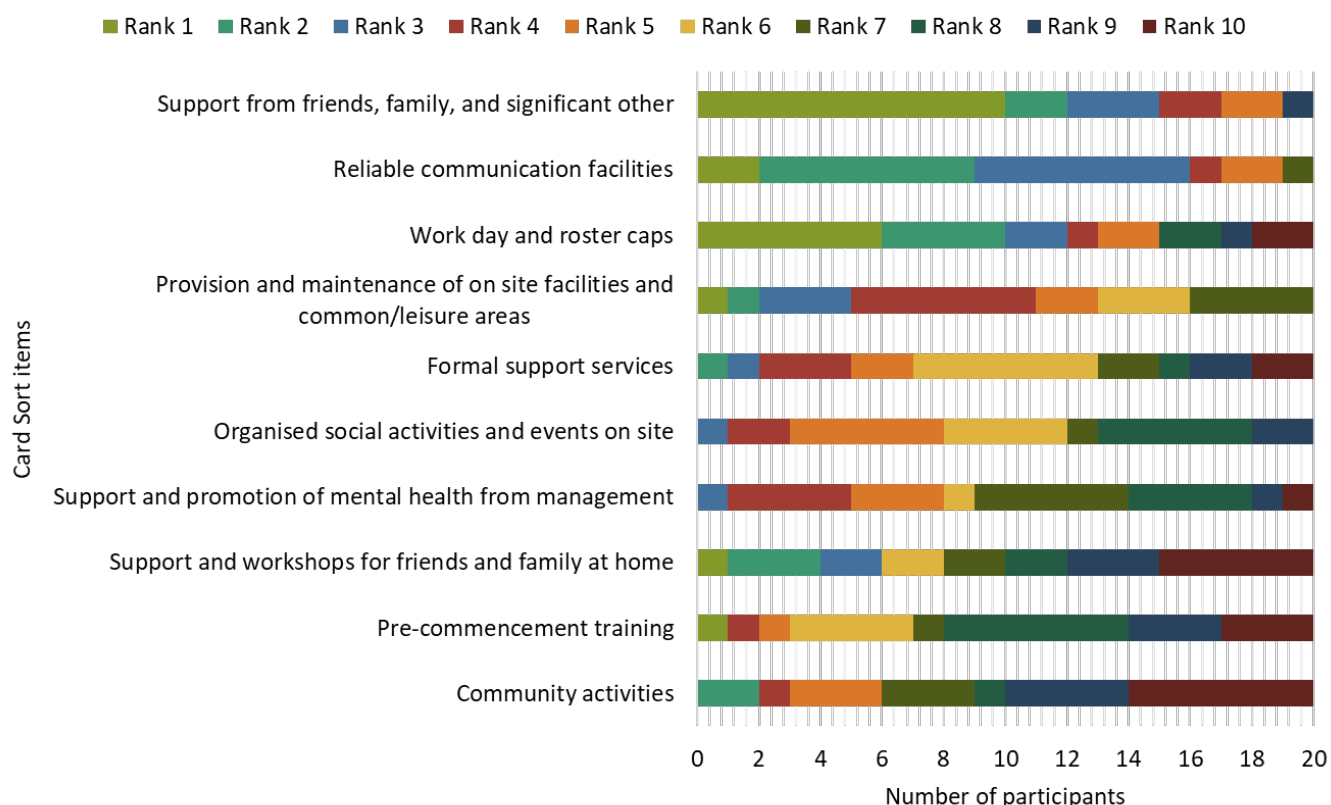


Figure 21. Card Sort Items by Rank Frequency

Formal support services was ranked in the middle overall, most commonly being rated at Rank 6. For some participants, formal support services had been very useful in times of stressful life events, while other participants reported not being aware of any formal support services on offer, or having a distinct reluctance to engage with them. Similarly, organised social events on-site had a range of importance ratings from participants, as some highly valued the social events on-site, while others reported not having the energy to engage with events, or potentially not having events organised at their site and so did not glean benefit from such activities.

Support and promotion of mental health from management was considered important by participants, however, many described a distinct lack of this in their experience. Management support and workshops for friends and family at home was considered something that there needed to be more of, but in general participants reflected that efforts to promote support would be best directed to people who are FIFO, as the people who remain at home had greater options and accessibility to connect with support in the local community.

Pre-commencement training was considered important, however, not as important as the ongoing supports such as social support. Participants commonly mentioned buddy programs for new

starters were useful, as they enabled people beginning their FIFO role to ask questions as they arose, rather than being given information in bulk at one point in time.

Community activities were ranked the lowest most frequently, however, this was done with the clarification that the barriers to accessing community activities (such as sports, volunteering, or other hobbies at home) due to the nature of FIFO work was why this was not considered as important. If these community based activities were more accessible, then their importance would be considered higher.

10.3 Themes

A range of themes were identified that were oriented around work conditions and cultural influences. As highlighted above in the card sort, the connection with social and community networks were identified as being important support resources and as a useful strategy to maintain these connections for wellbeing. In this chapter, I report on two sets of themes, firstly themes that are focused on the support context, and next themes that speak to strategies.

Through the thematic analysis I identified two themes that specifically captured the support context, and six themes that capture strategies for supporting wellbeing for people who FIFO. Within each theme, quotes from the participants' transcripts are presented to illustrate each dimension of the theme. Each quote is presented with a participant number in parentheses, and is done to demonstrate the representativeness of themes for the participants as a group.

The themes are presented in a thematic map (refer Figure 22). The thematic map is read from left to right, and contains the themes names in the ovals. The support context themes are in gold ovals, and the strategies themes are in orange. A brief description of each theme is displayed in the grey boxes, with illustrative quotes in the speech boxes.

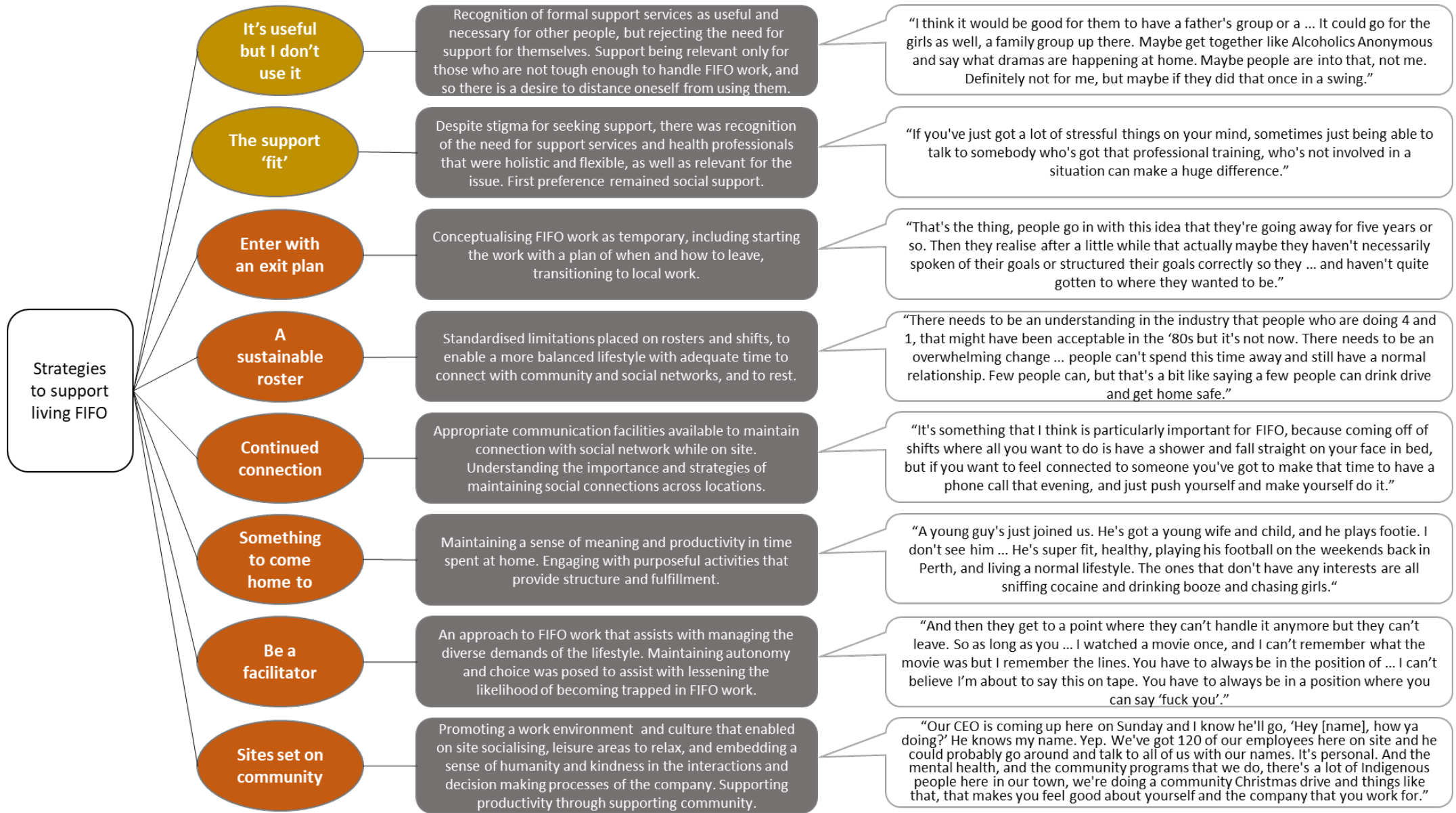


Figure 22. Thematic Map of Support Context and Strategies Themes with Description and Supporting Quotes

10.4 Support Context

The first group of themes focused on the support context, and what is considered appropriate support. Two themes gave specific insight into how people who FIFO conceptualised the support that they would be receptive to or wanted. These themes provide a context for the kinds of strategies identified by participants.

It's useful but I don't use it

The theme *It's useful but I don't use it* captures the attitude from participants in the hyper-masculine culture of FIFO in recognising the need for support for people who FIFO in general, while rejecting the need for support themselves. A key aspect of this theme was that support was 'for you, not me'. This theme is linked to the challenge theme *The FIFO type* described in Chapter 9, as in order to be considered the type of person who is suitable to partake in FIFO, a person must not need support. Instead, support is identified for 'other people', who are implied to not be the type for FIFO.

Participants spoke about possible or useful support options that could be useful for other people, but made it clear that these supports were not needed by them. One participant illustrated this through making a suggestion of a support group,

I think it would be good for them to have a father's group or a ... It could go for the girls as well, a family group up there. Maybe get together like Alcoholics Anonymous and say what dramas are happening at home. Maybe people are into that, not me. Definitely not for me, but maybe if they did that once in a while. (1)

Here the participant reflects the reluctance to personally identify a need or openness to engage in support, being mindful to clearly indicate that although the support would be useful, it was not applicable to him. This was further demonstrated in the card sort activity, where participants ordered a range of support strategies from most (one) to least (ten) useful or needed for them, "Yeah, formal support services are probably number seven. I don't use them, but I can see someone probably could find, someone could find that necessary." (2) Through this activity this participant communicates the tendency of participants in general to place formal support services near the 'less useful' end of the spectrum, however, this was usually accompanied by a clarification that the participants recognised the support may be necessary for other people. In this way, participants were seen to create a distance between themselves and engagement with support.

Another key aspect of this theme was the conceptualisation of what is required to engage with formal support services. Participants conveyed an understanding of formal support services as being appropriate for mental illness more so than for day to day support,

The way that works is, people sometimes think that an EAP is ... 'I'm not crazy, I don't need to speak to a psychologist, I don't need a professional.' The idea behind the peer support is, you don't even have to talk to someone you know or work with. It's literally just someone that you can vent to that has at least some understanding of where you're coming from. (13)

This participant articulates this idea of formal support, further explaining the creation of alternative avenues for support through peer support programs. The creation of peer support programs was described to be more appealing to people who FIFO due to it not being a formal support service, and therefore being conceptualised for day to day use rather than for severe cases. However, a parallel was evident in the distance posed by participants for both peer support programs and formal support services,

I never really saw programs set up, there was one called Peer Support where I was most recently at [company]. But I never went into it myself, I never ... They were looking for people to volunteer to be actual peer support volunteers, but also anyone who wanted to talk to someone on a more personal level and because of the work environment, personal conversations don't generally go too far. (20)

Here the participant identifies the peer support program on-site, noting that having the formal structure of the peer support assisted in creating opportunities to have personal conversations. This was described to be beneficial as the work environment was seen as an obstacle in conversing openly about things of a personal nature. This is further illustrative of the Challenges theme in Chapter 9, *Hyper-masculinity breeding silence*, where the hyper-masculine culture of mining encourages avoidance of such topics and thus limits discussion or recognition of mental health and personal hardship. This link was further reflected by another participant, where the discomfort cultivated by this mining culture was further perpetuated by the stigma attached to engaging with support,

I think it's- I guess it's anybody. It's quite sad. If they're not comfortable in, I would say, the offer, if they're not comfortable in reaching out when they know they can, but there's a reluctance for both reasons. Yeah, it's still a lot of stigma attached with it all. (15)

Here this participant conveys the dual nature of reluctance in seeking out support for people living FIFO. The sense of discomfort described here is an obstacle to engaging with support, and this is in addition to the already prevalent stigma attached to mental illness and formal support services. As this participant notes, although a person may be aware of support and know it can be accessed, there are cultural, social, and psychological barriers that are seen to diminish the likelihood of engagement occurring. Peer support is more informal, however, it still has a formal structure and recognition that to seek it out is an admittance of not coping independently.

The support 'fit'

The theme of *The support 'fit'* captures the pattern of thinking conveyed by participants where the source of support engaged with needs to be fitting for the situation being experienced. Through this, participants described a need for multi-dimensional and diverse support options in order to make FIFO work, work. A key aspect of this theme was the continued need for formal support services regardless of the attached stigma. Although participants recognised the stigma and discomfort associated with accessing formal supports, the availability of these supports were still considered important as it was an opportunity to engage with someone with professional training who was not involved in the context of the individual seeking support,

You're isolated from family and friends, you don't get, sometimes text messages or phone calls can get a bit, you know, you misinterpret messages and things like that, so having ... or if you've just got a lot of stressful things on your mind, sometimes just being able to talk to somebody who's got that professional training, who's not involved in a situation can make a huge difference. (6)

As this participant reflects, the distance and time spent away from loved ones was seen to create difficulties with communication, as it is not able to be done face to face. In these instances, participants described being able to talk to someone external to their day to day life as being useful.

Another key aspect of this theme was the preference for engaging with personal social networks for support in day to day life. While the range of formal supports were considered appropriate for specific issues of a particular level of severity, they were not seen to be an appropriate replacement for general connection to social networks,

I think you know, people would like people because I think one of the best supports isn't a government department. It's your neighbour or your FIFO

friends down the road. You know, they can support each other. If someone gets sick, you've got someone to pick your kids up from school. That kind of stuff. (3)

Here, this participant conveys the importance of maintaining connection to people who can provide practical support and assistance in times of need. This was described to be of greater significance than other formal support services. This was further demonstrated by participants' preference to seek support from loved ones rather than formal services, for example, *"I've never paid much attention to it. I'm a bloke, we don't pay much attention to that [formal support services]. If I've got issues I'll talk to my mates or my wife about it."* (1) As this participant articulates, seeking support from friends and family is the first point of call when issues arise. Maintaining connection with loved ones thus is of paramount importance, so this support is able to be accessed.

The need for multi-dimensional and diverse support was another key aspect of this theme. This was highlighted by participants through discussion of a range of support assistance that were needed. Participants identified that connection to friends and family was the most important, however, there were also a range of other areas of life that would benefit from support and assistance. For instance, a participant acknowledged the importance of having access to other types of support options beyond those targeted for personal or relationship difficulties,

If you have a mental health problem or if you're needing to talk about something that you can't sort out with your normal support groups, but maybe that's also where having access to a financial advisor or ... not like a life coach, but someone that helps you get started to define your goals. But it doesn't really matter what you'd call them. (7)

Here, the participant describes the importance of supports that assist with a range of needs and to assist in goal setting. This suggests that support in organising oneself in managing the lifestyle of FIFO overall is of interest for people who live FIFO. Another participant highlighted the need for multi-dimensional support in conveying the difference in what peer support and formal support provide,

Having that peer support and also having a professional support. It is very, very different. A lot of the time it's even just, in a peer support role, you get taught things like strategy wise, 'Go for a drive or sit down at dinner together.' Or whatever. A lot of it is very much that. Not necessarily having to maintain eye contact 'cause that almost puts a feeling of discomfort there. If you have things

like, going for a drive, you can chat and both of you can participate but it's not necessarily that face to face or the rest that goes with that. (13)

As illustrated by this participant, the more informal nature of peer support was seen to lessen the likelihood of discomfort due to a lower intensity as compared to formal support. This was described as being beneficial, as it was seen as more approachable in comparison to accessing a formal service. In this way, the importance of having a range of support options was identified by participants in order to have *support fit*, and ability to cater for the diverse needs of people who live FIFO. This suggests the need for development of a diverse range of supports to increase adaptability to the needs of people who FIFO.

The contextual factors illustrated here, coupled with the range of challenges described in Chapter 9, highlight the need for a range of strategies to boost social support and connection, and also to work to transform the hyper-masculine mining culture to enable greater engagement with both formal and informal support resources. In the next section, themes reflect the particular strategies that participants identified to be important in supporting their wellbeing while living FIFO, by ultimately strengthening their social networks and transforming the mining culture.

10.5 Strategies

Enter with an exit plan

The theme *Enter with an exit plan* captures participants' strategy in managing their FIFO lifestyle by conceptualising it as temporary. Participants conveyed that the approach to FIFO needs to be conducted in such a way that before a person begins living the lifestyle, they have a plan to leave. In doing this, people living FIFO are afforded greater perspective and organisation in their experience of FIFO. A key aspect of this theme was the focus on preparation for FIFO. Participants highlighted the importance to understand what living FIFO entails beforehand,

That's pretty important, to know what you're letting yourself in for. Our site, when I first started doing FIFO you had your site, your induction was in Perth, so there was a bit of information about the site. That was quite good. Whereas now, it's on-site. So you come to work you get straight into it, you don't get like the counsel even. I think it's, maybe it's better to have a bit of information beforehand. Buddy system would be good. (17)

Here, this participant explains the importance of having adequate information to prepare for living a FIFO lifestyle, before beginning the work or arriving on-site.

Another key aspect of this theme was planning for the future. As part of this, participants highlighted the importance of keeping an eye on the big picture, and understanding how FIFO fitted into their long term plan. In particular, participants commented on the necessity to organise and set goals when engaging in FIFO,

That's the thing, people go in with this idea that they're going away for five years or so. Then they realise after a little while that actually maybe they haven't necessarily spoken of their goals or structured their goals correctly so they ... and haven't quite gotten to where they wanted to be. (13)

In describing this, the participant articulates the difficulty in planning for FIFO and the commonality of those engaged in FIFO not planning effectively. This illustrates the need to have an effective plan for FIFO, and to have support in doing this. Further to this, the participant described the effect of this within the context of the mining industry downturn,

That's the biggest thing. Probably because of the down turn, you're seeing a whole bunch more jet skis and boats up for sale. The main reason for that is people go and start living beyond their means, or they live to their means, but they're on FIFO, not understanding that a lot of the time, very much in the bubble. What you are in for ... driving a truck for example, is actually not anywhere near comparable to what you could potentially get if you had to leave mining. Not getting into the trap of going, 'Well this is my income, so I'm going to spend 95% of this every month'. (13)

As this participant explains, planning for the future needs to include financial planning in order to adapt to the cyclic nature of the mining industry. In *entering FIFO with an exit plan*, participants reflected this would enable engaging in FIFO to be more sustainable and be better utilised to meet their goals, promoting the benefits of the lifestyle and income while minimising the risk of becoming trapped due to financial obligation.

A sustainable roster

This theme encapsulates the importance of the FIFO roster, exploring the implications of longer and shorter rosters and the effect on participants' lives. A key dimension of this theme was the recognition that the roster was a risk factor for poor wellbeing. The amount of time a person working FIFO could spend at home and with their friends and family was dependent on the FIFO roster,

There needs to be an understanding in the industry that people who are doing 4 and 1 [4 weeks on-site; 1 week at home], that might have been acceptable in

the '80s but it's not now. There needs to be an overwhelming change ... that people can't spend this time away and still have a normal relationship. Few people can, but that's a bit like saying a few people can drink drive and get home safe. You know? A vast majority of the people can't so it's ...yeah. There's no question or shadow of doubt in my mind that the industry needs reform. But the more that they ... the industry will continue to deny that this exists. The problem is definitely there. (2)

Here the participant reflects on the ongoing issues of finding balance in the FIFO roster, and the tendency for mining companies to create long rosters (although change in this area has been acknowledged). The comparison of a longer FIFO roster to drink driving highlights the conceptualisation of the roster as a risk factor to wellbeing, posing that it is the minority of people who are able to make a long roster sustainable and safe. This conveys the need for *sustainable rosters*, that allow a person working FIFO to maintain connections with their friends and family and home communities. Another participant spoke of mining companies being held accountable in creating the FIFO rosters,

Don't create rosters that are that fucking stupid! If you're going to create rosters where you're flying on your own time where you've got five days off, then don't hire people from Eastern States. The thing that came back with a lot of management was, 'Oh but they knew it, they accepted it.' Yeah, but there's a difference between people knowing something and then experiencing something. You can know what something's going to be like, you can know all the details, and then when you actually experience it, it's completely different. (4)

As reflected by this participant, a tension was identified where mining companies created rosters that were deemed unsustainable, however these were rationalised by companies referencing employees still accepting roles with these longer rosters. Participants described how the downturn of the industry and subsequent job losses had promoted more desperation in accepting any available work in mining, which has meant more people are prepared to take on longer rosters. Participants also identified the use of contracting as problematic in creating situations where destructive rosters were more likely to be the norm. With increasingly high targets and demands of production, the likelihood of more sustainable rosters such as the eight and six (eight days on-site; six days at home) decreased. The importance of creating *sustainable rosters* for all FIFO employees was depicted as crucial by participants in

maintaining wellbeing and social connection, with mining companies needing to be accountable.

Another key aspect of this theme was the connection between *a sustainable roster* and sustaining relationships. Participants gave insight into the changes in their relationships and the benefit of working a closer to equal time roster,

We started talking more and it started to work better. We started enjoying each other's time. I'd go away and come back and she stayed okay, that's fine. Then I'd come back be home. You know taking the dogs for walks. Doing all those other happy couple things and you know within a year I was back and very happy where I was. And within two years things were just great. And things have just been getting better and better and better since I switched to eight and six [eight days on-site; six days at home]. (10)

Here this participant portrays the difference a sustainable roster can have on a person's ability to sustain and thrive in relationships. The increased time at home with an eight and six roster, as opposed to a two and one roster (two weeks on-site; one week at home), meant being able to be more engaged and present, and being able to spend quality time with loved ones. As further support of this aspect, participants commented on the destructive nature of longer rosters on families,

I see so many families break down and so many people struggle. We have guys here on four week and six week rosters [four or six weeks on-site]. I just think they should be a thing of the past. They just ... they're destructive rosters. I think two weeks on a mine site with twelve hour days is long enough. (3)

As this participant poses, the longer rosters are deemed destructive and are seen to be associated with family breakdown and increased chance of being unable to cope with the lifestyle. This further contributes to the importance of *a sustainable roster* as a strategy to balance and sustain the FIFO lifestyle.

Another key dimension of a sustainable roster was the connection to sustaining wellbeing. Participants highlighted the affect the roster had on their health and wellbeing,

So specifically on this roster, when I was on an eight and six, I was fine. But on this longer roster, I have had to seek medical help actually to make sure ... to keep myself able to keep going because I just was finding that I was not able to maintain my energy throughout the day and things like that just with normal kind of diet and exercise requirements and things. (8)

As this participant notes, the rosters impact on wellbeing also had particular implications for energy and productivity levels. This gives further evidence of the importance of creating *sustainable rosters* to support wellbeing and therefore ongoing productivity and safe work practices. Beyond this, having a *sustainable roster* was also identified to be important for wellbeing through providing opportunity to engage in activities that were personally meaningful,

It would mean maintaining better relationships with more people. It would mean being able to vary my social activities more than I'm able to now and participate in a range of activities. And also, it would mean being able to feel more, what do you call it, sociably responsible. So the volunteering and things like that makes you feel like you're actually perhaps achieving something in your life other than making money. (8)

Here, the participant describes the opportunities that may be available with a *sustainable roster*. The significance of these things, as this participant identifies, is the ability to act in accordance to personal values, be of service, and feel a sense of purpose and meaning in life beyond making money.

Another participant commented on the need for *sustainable rosters*, however also noting that having a sustainable roster was not enough to alleviate all challenges with FIFO,

It's an improvement, and now eight and six is an improvement from that, which is what I did up until last year. But you still have all those same, I still had those same feelings popping up, that isolation and that helplessness. (20)

Here, this participant notes the benefit of the eight and six roster, where a person will work for eight days on-site and then fly home for six days of rest. This roster in particular was highlighted by participants as the most sustainable, as it was close to equal time at site and at home. However, as this participant also notes, a *sustainable roster* was not the only thing needed to support overall wellbeing, but was a key factor in managing and creating balance in the FIFO lifestyle.

Continued connection

The theme of *Continued connection* captures the importance of keeping in touch with friends, family, and partners while on-site, as well as cultivating an expanded social network that connects site and home. Participants spoke of maintaining social connectedness as a strategy in making FIFO work, work. In being able to foster a *continued connection* with social networks, participants reported that the internet and phone reception were important to

have. As such, a key aspect of this theme was facilities and resources to connect. One participant described the anxiety prevalent when connecting with people at home was unreliable,

You can go somewhere like a common room where there is actually internet available Wi-Fi, I think it's just important. Some places the reception is pretty average and that would just add to that worry, that concern. If you don't hear from your family, they don't hear from you, then they're going to be worried, they're going to be thinking why is he not in touch? Why is she not in touch? That's mostly I think why I put that there, reliable definitely is the right word there. (19)

Here the participant gives insight into the importance of *continued connection*, and highlights the need for reliable communication facilities in order to keep connected with friends, family, and partners at home. As part of this strategy, having appropriate infrastructure to ensure people on-site are able to have a *continued connection* with loved ones is crucial. As another participant described, the ability to stay in contact through these communication facilities are fundamental to everyday life,

We recently headed out to a site that's only got Optus coverage, so I didn't have my normal phone on me, so I actually found, while I hadn't necessarily thought it was a large component of, I guess, a coping mechanism, by not being able to just pick up the phone whenever I wanted actually was kind of a ... I noticed when it was missing, more so than something that I really noticed that it was there. (13)

As this participant describes, a sense of missing this connection when it was not available, as opposed to something consciously sought out, reflects the integral need of a *continued connection*. In providing adequate cellular reception, social connection can be maintained. Further to this, as described by this participant, social connection is important for coping, meaning providing reliable communication facilities is valuable not only to relationship building but to overall wellbeing. This was reiterated by another participant, who articulated the reasoning behind why having reliable Wi-Fi was important,

My little whinge there is that we don't have Wi-Fi and it's at our own expense, so we've already got it anyway. Then, the reason you want that is to contact these guys to get you through your week, find out how their weekday was, tell them how your day was, what are your troubles, what have you done that was

stupid. It's just good to get it off your chest and tell people what's going on. [Partner] gives me advice over the phone. Just seeing these guys on Skype makes your day better. It makes the week go a lot quicker. (1)

As the participant describes here, maintaining connection with loved ones is significant in boosting wellbeing and a sense of support. Key to this strategy of promoting continued connection is the provision of reliable communication facilities including internet and cellular service.

Another key aspect of this theme was the continued connection between home and site. Participants described the importance of bridging these locations by connecting with loved ones at home while on-site, but also to continue connections made on-site while at home. Cultivating strategies that connected site to home was emphasised by participants to improve time spent on-site,

One night I remember walking past a room and a guy was sitting out the front with his computer eating his tea, and he was essentially having tea with his family. And I talked to him about it later, and he said at least once a week he times it so he goes to the mess and takeaway tea, and sits outside his room with his laptop, and his wife has a laptop setup at their dining room table, and he sits and has dinner with the kids. And I thought that's so awesome to be able to do those things. (11)

As this participant describes, using the facilities available to maintain connection with loved ones at home enabled time spent on-site to be less isolating. In addition to this, another participant spoke of the significance in connecting site to home, with maintaining connections made on-site when at home. In describing this, the participant posed that understanding the value in the work, the goals of the team, was important for this sense of connection,

I feel more supported and part of the team when I know what my team is doing and what the end goal is, what the value we're creating within the business, because obviously work is a large part of my life and if I feel as though my work has value and a reason for me doing it. I feel much more connected to the broader business, if not directly to my social community, but it's definitely a connector to the business community. I think that when you do work, that professional community is almost sometimes your social community as well. (5)

As described here, the connection to the business and finding a sense of meaning in the work was seen to assist in bolstering social connectedness through meaningful professional

relationships. Although this was distinguished from a broader social community, the participant described the often dual nature of a professional community in becoming a social community in and of itself. In this way, the strategy for continued connection can involve promoting the connection of site to home, as well as home to site. This participant further described,

I effectively live with the people that I work with over 50% of my year, and so if I'm happy with the team at work that generally rolls over into being happy with them outside of work so I'm more likely to engage in social activities outside of work, someone's more likely to organise a social activity, someone is more likely to see me outside of work if we have a good working relationship. (5)

As articulated here, the connections built in the work environment can translate to social connections outside of work. By enabling bonds to form with workmates, *continued connection* from site to home can be created.

Another key dimension of this theme was the importance of simply being around people. Participants described the long hours and often isolating nature of on-site mining work meant that motivation and opportunity to socialise on a daily basis was difficult. However, this was deemed to make a difference to the experience on-site,

The people was the best thing for me, the work was not very stimulating. In fact, not at all really. You're working in some dusty, hot conditions each day. Being around certain people and certain males, it was pretty much males, made it definitely a better existence for me. Especially the last couple years being around people just made it a bit more I guess joyful, a bit more relaxed, which it was a bit more camaraderie it felt amongst me and just a few other individuals. It wasn't everybody I felt that way around. (20)

As this participant describes, when satisfaction in the work itself was not substantial, what made a difference was connecting with people around him. The harsh conditions and often repetitive nature of mining work was noted to be draining, however, the friendships and camaraderie experienced on-site was a way to recharge and unwind, and experience joy. This sentiment was echoed by another participant, where forming a social group on-site was posed to make a difference to on-site life,

I think another important one for when you're away is getting to know a few people fairly well up there, because depending on your roster, you spend two thirds of your life up there. It is like your home. You spend more time there than

you do at home. So having that person or a few people that you can go and, I don't know, have a drink with, or you can go to the gym with, or go walking or whatever, it's quite important. I know some people probably say, 'No, I prefer to sit in my room and read a book,' or whatever, but for me, that's what I do. Few guys, we go to the gym. Go and have a couple drinks and that out and about or just talk rubbish. (19)

Articulated by this participant is how the importance of actively spending time with people is a key factor in the strategy of *continued connection*. Although as this participant notes the desire to engage in social interaction after a fatiguing work day can be low, it seems the benefits gleaned from spending time with others is important in reducing feelings of isolation. In actively seeking out social connection, another participant commented on the conscious effort that is required,

I think it's a skill that everyone gets as they grow older and realise that their time is more precious than whatever, but it's something that I think is particularly important for FIFO, because coming off of shifts where all you want to do is have a shower and fall straight on your face in bed, but if you want to feel connected to someone you've got to make that time to have a phone call that evening, and just push yourself and make yourself do it. (5)

Here the participant conveys the investment required to maintain a continued connection within relationships and social networks, and is a significant factor in the *Continued connection* strategy. To maintain a sense of continued connection, there must be reliable communication facilities, care taken to bridge the gap between home and site locations through not isolating relationships to one place, and taking care to actively seek social interaction.

Something to come home to

The theme *Something to come home to* represents the strategy of maintaining a sense of meaning and purpose in time spent at home. Participants reflected that time on-site was structured and organised, however at home the 'free time' was, for some, difficult to manage, and often participants reflected that the free time left them 'floundering in flexibility'. This experience has been previously captured in the challenges theme of *Sprint and a sudden stop* described in Chapter 9. Key to the theme *Something to come home to*, was maintaining structure and purpose while at home. One participant commented on the usefulness of routine commitments or ongoing projects associated with business or hobbies, "*The people I found who do well have families and hobbies or second businesses or things like that.*" (4) To build *Something to come home to*, participants also commented on the need for planning,

I found it most isolating when I was single, and it's a long, yeah, I guess my first year here sometimes you come home on break and you're just like well, what am I going to do, who am I going to spend my break with? (17)

Here, the participant reflects the need of prior planning to use the time at home effectively, and the benefit of having something to come home to on break that is consistent (in this example, a relationship). Participants reflected that time spent at home was an opportunity to connect socially, and feel a part of their community, but these connections required pre-planning and in some instances multi-tasking,

Just planning things and not just going down to the pub, because that's great and all, but in the times where you want to do multiple things at the same time, and so going for a swim or going to do tennis keeps up socialisation as well as exercise. (5)

As this participant notes, planning activities is a strategy useful in giving structure and purpose while at home. Further to this, engagement in meaningful pursuits and investing in hobbies outside of FIFO was posed by participants as a useful strategy for time at home. For instance, a participant commented on seeking out volunteer opportunities in order to engage in something with meaning and purpose,

Even like tree planting, if there's a database somewhere that said I don't know, 'Men of the trees have a day on Sunday. And they're gonna plant some trees.' You know, you could go along for a few hours. I'm sure they're advertised somewhere but it's not in my little social range or even social media range. (3)

As described by this participant, engaging in volunteer activities that were able to fit with the FIFO schedule was posed as a wanted avenue to boost a sense of purpose and giving back to the community. A need was also highlighted in being aware and able to access information about volunteer opportunities that were available.

Another key aspect of this theme was the need to invest in life beyond work. As a strategy this was targeted towards connecting oneself with other existing organisations or clubs that maintained a regular structure. For example, a participant spoke about becoming involved in sports and committees,

I am a very people person, and so I like to feel connected to people and I volunteer as well as sports, I'm involved in different committees at work. I think that's got a lot of value ... I get a sense of satisfaction for helping other people, I get connection with other people, I get friendships out of it, which helps my

social interactions because being from another state I don't have the connections from school and university here. It gives me exercise, because I'm not motivated to do it myself. (5)

As this participant describes, getting involved in group activities was identified as a useful strategy in occupying time outside of work and particularly when at home. This was also especially important for people who have relocated from interstate for the FIFO role. The usefulness in being able to access a variety of opportunities to engage in volunteerism, leisure, or community activities was conveyed by another participant,

A young guy's just joined us. He's got a young wife and child, and he plays footie. I don't see him ... He's super fit, healthy, playing his football on the weekends back in Perth, and living a normal lifestyle. The ones that don't have any interests are all sniffing cocaine and drinking booze and chasing girls. (10)

Here, this participant expresses the importance of finding meaningful engagements during time spent at home, as having nothing to come home to was seen to lead to unhealthy behaviours in order to fill the time. The comparison made here by this participant illustrates the significance of the *Something to come home to* strategy to supporting wellbeing and healthy behaviours.

Be a facilitator

Be a facilitator was posed by participants as being a necessary skill and strategy in order to make FIFO work, work. This was identified to be a specifically individual strategy, a particular way of orientating oneself in the FIFO lifestyle, a perspective on FIFO work, and managing the diverse demands of the lifestyle. The overall ethos of this theme was articulated as maintaining the ability to walk away. Through this, participants spoke of maintaining choice and autonomy in their FIFO experience, and ensuring they did not become trapped in the lifestyle,

And then they get to a point where they can't handle it anymore but they can't leave. So as long as you ... I watched a movie once, and I can't remember what the movie was but I remember the lines. You have to always be in the position of ... I can't believe I'm about to say this on tape. You have to always be in a position where you can say fuck you. (8)

This participant articulates the central goal of this strategy theme, by maintaining autonomy and choice when participating in a FIFO role and facilitating the arrangements of the lifestyle in

such a way that should a person no longer want to continue, they are empowered to say no to the situation and walk away.

A key aspect of this theme that participants considered to empower individuals in appropriately facilitating their FIFO lifestyle was to manage day to day life according to priorities. Participants commented on being aware and actively engaging in ways that aligned with what their priorities were, including physical health, having time for family, and financial management. As one participant described,

Yeah, fatigue is you're getting to bed early, you realise that you can't go drinking every night of the six nights that you're at home, you start to just manage your life so that you prioritise what's important to you and allocate time accordingly. (5)

Here this participant reflects on the common drinking behaviours associated with living FIFO, and the importance of limiting alcohol intake and instead focusing on having adequate time for rest in order to prioritise managing fatigue. As another participant described, in order to prioritise family time and recuperation, communication and outsourcing was useful,

Tell people what your roster is and to organise family time. When you're away, everybody wants to see you when you first come back but you need to be with your family for a couple of days and you need some me time too. And to pay to have that maintenance done. Don't work yourself to the bone trying to do everything at once. (3)

This participant articulates aligning the day to day activities with what the priorities are, and making sure that time is available for those things that are important. By outsourcing for practical support like house maintenance, family priorities and recuperation time could be fulfilled. The management of finances and contextualising financial goals were also described to be essential to effectively facilitating a FIFO lifestyle,

If we were to tell people as they came into mining, okay, we'll jump, you're coming into an unskilled job and you're getting paid, say, \$115,000, just think about that. Think about the next, if this job didn't exist, think about what you'd be doing and how much you'd be getting for it. Live within those means, not within these means. I think maybe that would help some people. I've never ever had anybody listen to me about saving for the future. (14)

As this participant describes, by contextualising financial goals it can assist people who FIFO to optimise their high income while it is being earned. This can allow for effective facilitation of a

FIFO lifestyle and potentially contribute to minimising the likelihood of becoming trapped in continuing FIFO due to financial commitments, or experiencing financial hardship after ceasing a FIFO role. This participant continued to describe why this financial planning was important,

If more people could live like that, I think probably, we'd get more out of them for starters. They're not trying to sandbag their careers all the time. They're just doing their job. I think there would be a little bit more happiness at home as well, knowing that you're doing it, but by choice, not by obligation. (14)

The comments by this participant are meaningful to the theme of *Be a facilitator*, by drawing the link between contextualising financial goals and maintaining autonomy, this strategy is geared towards supporting wellbeing through maintaining living FIFO as a choice.

Another key aspect of the theme *Be a facilitator* was organisation as a discipline. Participants reflected on the ways they actively organised their lives, and approached this organisation as a requirement for making FIFO work, work,

So I have a calendar and plan it out. It looks daunting when you first have a look at January and you've got something planned in December but that's how I do all my appointments and everything. Yeah, I even book my hair appointments 12 months in advance. (3)

A difference with living FIFO, as this participant describes, is that the ways people need to be organised may need to be executed on a larger scale. Participants reflected that due to the nature of the FIFO roster, appointments and events needed to be scheduled well in advance in order to ensure they would fit in with the schedule, and this required disciplined organisation. Participants also reflected on the need to keep on top of the organisation of their life,

I guess it just becomes a discipline that when you come home, you make sure everything is squared away and then the rest of the break is yours to do whatever you want with. (1)

Here the participant reflects on the strategy of focusing on what is needed to be done, before engaging in other leisure opportunities, which indicates the disciplined nature of the level of organisation required to facilitate a FIFO lifestyle.

In line with the other aspects of this theme (the ability to walk away, aligning with priorities, and organisation as a discipline), a central aspect of *Be a facilitator* was to keep an eye on the big picture. This was considered to be an important component of effectively facilitating the FIFO lifestyle, by maintaining a connection to what was personally important and in life. As one participant described,

Purely from a personal way of understanding all of the tough parts of doing FIFO, I guess that made me think every day, because bad things did happen unfortunately, a lot of bad things did happen. I just knew that I can handle this, I can deal with this, I've done it before, something much worse as well, something on a much grander scale. I guess yeah, that's how I personally managed as well. (20)

Here, the participant reflects on having faith in personal resilience and how putting the challenges of FIFO into perspective in relation to the bigger picture was helpful in coping with the overall lifestyle and maintaining personal wellbeing. By keeping this perspective on FIFO, participants also commented on the need to align their goals and understand how FIFO work fitted in with their overall narrative and life plan, both personal and professional. Participants described the importance of channelling the money earned into activities that did bring happiness and enjoyment into life,

The actual money doesn't make you happy. It's what you can do with it that makes you happy. You can pay the bills, you can go on holiday. We don't go on super five stars. We're not into luxury and stuff like that. We like to do ... We like to hike, we like to see things. There's got to be ... That's what I say to the guys that I work with, 'There's got to be a trade-off.' (10)

The identification of the 'trade off' the participant describes here speaks to a semblance of work life balance, and keeping an eye on the big picture rather than getting swept up in earning money for the sake of earning money. Instead, facilitating the FIFO lifestyle so that the money earned is channelled towards things that bring joy to life.

By strategically facilitating the FIFO lifestyle to maintain the ability to walk away, aligning day to day life with priorities, being disciplined in organisation practices, and having perspective on the bigger picture and how FIFO fits, participants reflected that living FIFO could be more rewarding and sustainable in favour of their wellbeing.

Sites set on community

The theme *Sites set on community* captures the strategy of building the current mine site culture to one that is based on social connection, belonging, and wellbeing. This strategy is posed as operating at both a structural and cultural level, whereby the physical work site is set up to foster community, and the values of community inform the future decision making of the company.

The identification of key challenges by participants (as described in Chapter 9) reflected an overall sense that the 'production at all costs' culture was not the most efficient in

motivating participants to be productive. The incorporation of the recognition of human needs, and kindness, into the culture of mine sites was described as being important and necessary for employees being healthy and happy in their work environment. In order to foster community, participants reflected on the need for a group effort, with both the company and the employees contributing and engaging. The aspects of this theme identified through participants' stories included site environment, opportunities to bond, and valuing humanity and kindness.

The first aspect of the theme *Sites set on community* was the importance of the physical site environment. In order to promote a foundation of community, the way the site is set up and the facilities offered are important,

They need to be good, comfortable, good quality camps. It seems to make a huge difference from people I've spoken to, you know, they sort of say, 'Oh yeah, this is a really nice camp,' or they sort of say, 'Oh yeah, I worked at, you know, blah, blah, blah camp and it was really run down and the food was awful'. (6)

As articulated here, the quality and comfort of the site environment was described by participants as influential for the way people engage and feel while on-site. Participants described that providing good quality facilities, and a comfortable environment, builds a sense of appeal and pride and increases the likelihood of people spending time using the facilities and spaces. In particular, participants described the importance of having leisure areas where people felt comfortable to sit and chat,

I guess a safe space to have a chat about stuff without the feeling that you're having a chat. Quite often the wet mess is that place. They will sit around and talk shit but then occasionally they'll bring in some other information. (13)

Here the participant reflects the link between the site environment and fostering social connection, whereby having areas for people to sit and chat, opportunities to form deeper connections and discuss more personal topics can develop. By building a site that is comfortable, and can offer spaces for people to interact, a sense of community can be fostered.

Another key aspect of the theme *Sites set on community* is opportunities to bond. The social culture on-site was described by participants to be an important factor for their wellbeing at work. Through the availability of social activities and spaces participants were able to enjoy on-site life,

Being able to go and socialise at the wet mess, having a common room so you don't just need to go back to your little FIFO room at night time. Having things like darts, and the pool table, and ... A couple of the sites that I travel to at the moment have trade a book libraries. I really enjoy reading. If you have a paperback, you just pop yours in, take the new one out, so that seems to be quite good. (13)

As this participant describes here, having a range of activities and opportunities to bond with others made a difference to how the time spent on-site was experienced. Participants noted that the important component of the activities and environment was being able to bond with other people,

Just the bonding, the social gatherings with your fellow workmates is a good thing. It gives you an escape or a break from the general work, sleep, work, sleep, work, sleep routine because that's mostly what the experience is. But when you have things like quiz nights or barbecues, more just social gatherings, I think I probably touched on it before, people just sort of feel more comfortable. And something to look forward to, it is something to be like oh I can't wait for that tonight. You have little goals, I notice that especially coming towards the end of the time, you had little goals throughout the week, little milestones. (20)

Here, the participant describes the benefits to wellbeing of being able to build good connections and sense of belonging with workmates on-site. These social events were described as being beneficial for breaking up the repetitive routine, and to assist with having the time pass with some things to look forward to.

Another key dimension of this theme was valuing humanity and kindness. Participants reflected on the importance of personal connections, and approaching relationships with genuineness and compassion. This was particularly appreciated from people in leadership and management positions,

Our CEO is coming up here on Sunday and I know he'll go, 'Hey [name], how ya doing?' He knows my name. Yep. We've got 120 of our employees here on-site and he could probably go around and talk to all of us with our names. It's personal. And the mental health, and the community programs that we do, there's a lot of Indigenous people here in our town, we're doing a community Christmas drive and things like that, that makes you feel good about yourself and the company that you work for. (3)

The sense of connection to the people in the company as well as in the geographic community this participant describes here illustrates the importance and value of community for wellbeing.

For the mental health campaigns that get promoted, the promotion was not seen to be enough. The value of kindness and compassion had to be put into practice and embodied,

I think that is really important. They need to be talking it, living it, getting out there letting people know, injecting it into conversations with people. You hear the old saying, just ask someone how they're going. 'Are you okay? Are you having a good day? Are you having a bad day? What's happening? What's happening at home?' And giving people the opportunity to engage. It has to be heartfelt, it has to be from the heart. Yeah, and not everyone can do that, but it goes a long way I think with people. (15)

Here the participant reflects the importance of genuine social connection with others, and how simple acts of kindness can be meaningful. Through valuing humanity and kindness, the motivation to show interest in others' wellbeing and their needs is elevated. Participants described these simple acts of kindness in a range of ways, such as doing nice things for others on special occasions, even as simple as having a birthday cake with their name on it and taking the time to have a cup of tea and wish them happy birthday together as a group. Participants reflected on these simple gestures as making a difference when people are on-site, and away from their families and friends at home. One participant described the tradition on 'fly out night' (finishing the final shift on-site before flying home) where the supervisors would organise some food and drinks and for the crew to wind down together,

It's only, I suppose, a tradition by us that we, the supervisors, do it for them, but it just ... I don't know. It gives them a bit of a hope, a sort of feeling of thanks, that we actually appreciate what the guys are doing and we're not just the boss. You know? We are thankful for what they're doing. (19)

As this participant reflects here, the gesture of thanks and for the work team to have an opportunity to spend time together before flying home was meaningful, and contributed to a greater sense of connection and satisfaction. This kind of demonstration of understanding and support from the company was identified by participants to be highly important,

One thing that all of the sites that I've worked at, we do, I think it's just once a year, they do like family visits, so they get family members up on-site, so they fly them up first thing in the morning, they have a day sort of looking around

the mine, and then fly them home, they get to eat at the dining, like the mess and all that sort of thing, and so they can really see what it's like for their family members, so yeah, I think those sorts of things are really, really, really important. (6)

Here, the participant describes the impact of the mining company supporting FIFO families by allowing non-employees to attend the mine site for a day. This act is meaningful to people who FIFO, as having their family understand where they are and what they are doing while on-site assists with their relationships and therefore wellbeing. This signifies the company valuing humanity and kindness, by recognising the importance of workers' families and the need for the family to understand what it is like for the person who is coming to work on-site.

The theme *Sites set on community* in essence captures the strategy of a community led approach for companies in how sites can be designed and operated for staff. Participants reflected that this kind of approach could have the potential to assist to stabilise the current cycle of poor mental health, turnover, and health and safety risks,

If you want to make a long-term target, you want a healthy, happy workforce that likes coming to work and enjoys the place. You will over years have a massive increase in productivity based on that. If you're constantly having to rush sites up to cycle or people are quitting, turnover rates, ours are at 30%, because people hate the roster, they hate the roster because the roster's shit. The turnover rate disrupts the crew, increases the health and safety, increases the pressure on everyone else because you've got newer people coming in who don't understand the system. It all flows through each other. I'm not sure how much the accountants, financiers at the top of this really understand. (4)

Here, the participant articulates the interconnected nature of wellbeing when it comes to a FIFO lifestyle, and the relationship between a healthy, happy workforce and the level of productivity of staff. In order to encourage a healthier, safer, and happier workforce companies and staff can strategically work towards having their *Sites set on community*, including comfortable environments, opportunities to bond, and valuing humanity and kindness in operations and culture.

10.6 Handover

There is no absolute solution to the challenges that are faced by people who work FIFO. However, there are multiple and intertwining opportunities to address the challenges. The findings here highlight that in understanding the dimensions to focus upon, there is

possibility in cultivating useful and effective multi-dimensional support. As described in this chapter, strategies that target both work conditions and cultural factors are needed.

By employing strategies that include approaching FIFO as temporary, offering sustainable rosters and supporting social connectedness, ensuring that time spent at home has meaning and purpose, empowering individuals who engage in FIFO to maintain autonomy and facilitate the lifestyle effectively for their wellbeing, and mining companies that promote community for their staff, people living FIFO can have the opportunity to thrive. The next chapter will consider the quantitative and qualitative findings together, in order to inform a set of recommendations. The integration of findings will explore change at multiple levels, in order to promote long lasting change for the complex array of issues identified.

Chapter 11 Phase Three, Objective 4: Develop and Validate Recommendations of Support Strategies

When a flower doesn't bloom,
you fix the environment within which it grows,
not the flower.

- Alexander den Heijer (2015)

11.1 Pre-start

In this chapter I present the process of integration of the Phase One and Phase Two findings, in order to develop recommendations and meet Objective 4 (refer Figure 23). First-order and second-order change principles were an important addition to consider when developing recommendations, and so I worked to extend on mixed methods integration strategies to include this, further grounding this research in Community Psychology. Consideration of the context people who FIFO exist within was also a significant consideration, and so this chapter aims to harness the strengths of this project's design utilising contextualism, community psychology, and mixed method research.

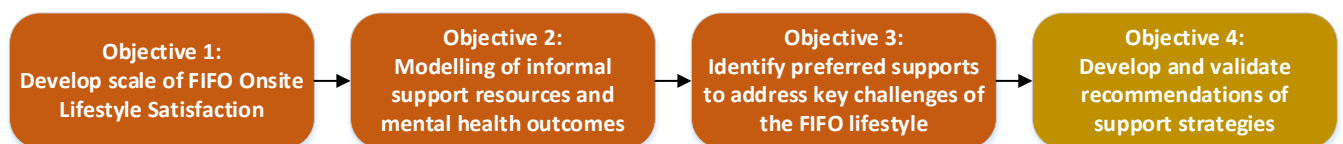


Figure 23. Flow Diagram of Project Objectives Addressing Objective 4

Watzlawick, Weakland, and Fisch (1974) pose that when a problem exists that is persistent and repetitive, such as the ongoing challenges present in the FIFO lifestyle, there are two factors that require consideration. Firstly, consideration must be given to how the undesirable situation persists. And secondly, consideration of what is required to change it. Some insight into the first question regarding the factors that maintain the challenges for people who FIFO have been touched on throughout this thesis, as multiple contributors to the way FIFO work is experienced have been explored. The findings of this research have also begun to give insight into the areas of need for change, and strategies currently utilised. What remains to be considered, is what is required in order to change the situation of FIFO work for the better. Therefore, in this chapter I will describe the process of developing final recommendations before presenting the recommendations, and extend

this by discussing how they might be implemented. The intent of these recommendations is to develop, and transform, the experience and environment of FIFO work in order to more closely resemble and meet the needs of social support, community, and optimal wellbeing.

11.2 Developing Recommendations within the FIFO Context

The Australian mining industry is cyclical, with booms and downturns. Despite the overall general trend of economic growth (Parker et al., 2018), fluctuations in the industry dictate changes in how operations and employment are organised and offered. Declines in the industry have been associated with declines in the provision and maintenance of site facilities, particularly social opportunities for on-site staff (Education and Health Standing Committee, 2014), the cyclical nature of the industry and associated work conditions resulting in an unstable FIFO lifestyle. Overall, the findings from the research presented in this thesis indicate a fundamental need for greater consistency in the support provided for people who FIFO.

An important consideration for developing recommendations for people who FIFO is to incorporate the wider context that people who FIFO are positioned within. The key identified factors for consideration for these recommendations include the cyclical nature of the resources industry, the hyper-masculine mining culture, neoliberal messaging promoting the individualisation of responsibility and productivity, and geographical transience. These factors are considered to be overarching challenges that are connected to the way the more specific challenges are expressed within the experience of FIFO lifestyle.

The cyclical nature of the resources industry means that being employed in a FIFO position has an element of inconsistency and instability. The availability of money and resources becomes the contingent factor for what a mining company is able to provide for workers, both in terms of support and social engagement on-site, and the types of rosters and production targets put forward for workers. The geographical transience must be considered when developing recommendations as this contributes to disruption and also limits ongoing time in any one location. This has implications for community membership and engagement.

The hyper-masculine culture prevalent in mining (Parker et al., 2018) must be considered as this contributes to mental health stigma, an association between emotion and weakness, and a demand for strength and detachment from emotion (Ely & Meyerson, 2010). The recognition of mining having a hyper-masculine work culture is not a new development (Laplonge, 2011). Discussion surrounding the influence of masculinity in mining and impacts on safety and health have been ongoing (Department of Mines and Petroleum, 2012; Education and Health Standing

Committee, 2014). Although this work culture has been identified and some steps taken to target change in the industry, the culture of hyper-masculinity persists.

The neoliberal messaging present in mining culture and local media presents people who FIFO as individually responsible for choosing to work FIFO, and therefore are, by implication, individually responsible for their own health and mental health outcomes (Trnka & Trundle, 2014). This individualist perspective problematizes the individual who partakes in FIFO work, and undervalues the contribution of the sociocultural context. Thus, the recommendations developed in this chapter seek to be contextually appropriate by acknowledging the factors beyond the individual that contribute to the associated challenges. The perspective taken here seeks to shift the fundamental messaging surrounding the source of responsibility for the challenges of FIFO, in order to promote a culture that acknowledges that individuals are not solely responsible for the challenges, and that approaches these challenges with a holistic perspective. It is the aim of these recommendations to assist in the alleviation of challenges, but also to assist in prevention of these challenges moving forward.

11.3 Understanding Change

How change occurs can be conceptualised in two levels, known as first-order change, and second-order change (Watzlawick et al., 1974). First-order change is ameliorative in nature, where facets of an existing system are altered or developed, however the system itself remains unchanged (Watzlawick et al., 1974). This type of change generally remains as surface level, with smaller or specific aspects of a situation being altered. For instance, an example of first-order developmental change observed in the mining industry has been the introduction of mental health awareness initiatives encouraging workers to reach out or call crisis support lines if they are experiencing difficulty (Parker et al., 2018). While this develops an aspect of the situation, the system and culture that contributes to the workers experiencing crisis and needing to reach out for support remain unaltered.

Second-order change is transformative in nature (Levy, 1986b). This change process is centrally concerned with action, targeted towards prevention and empowerment, to fundamentally alter the status quo (Seidman, 1988). The aim of second-order change is to change systems that are identified to create problems, rather than limiting change efforts to addressing the problematic symptoms born of the system (Scott & Wolfe, 2014). Systems are complex, and as such require a dynamic approach. This may include understanding the patterns of transaction, relationships, and behaviour of those that are part of the system (Seidman, 1988). When working to transform a system, both a policy oriented approach and a participatory approach can be considered (Christens

& Freedman, 2014). This enables a combination of policy change, professional practice guidance, and citizen engagement to be harnessed (Christens & Freedman, 2014). Within the context of people living FIFO, transformation of policy surrounding FIFO positions, work conditions, work culture, and how the workforce can participate in the changes are important to consider. In addition, broader considerations regarding the role of relationships as well as community and social connectedness are important to include.

As it is not supposed that one set of strategies will be applicable to all situations that people working FIFO experience, the recommendations will be fundamental in highlighting selective significant areas for change, with a range of applications posed. There is an established need for change, and a sense of urgency for action to take place. Issues that appear at the surface level may reflect a need that is not currently being met by the conditions of the organisation or social system, and requires attention, engagement, or resources (Beisser, 1970). Therefore, recommendations will be considered within the context of both first-order and second-order change.

11.4 Approach to Integration of Results and Findings

For mixed methods research to be considered authentically 'mixed', the process of integrating the quantitative and qualitative findings must occur (Creswell & Plano Clark, 2017). The intent of integration in an explanatory sequential design is to connect the quantitative and qualitative findings in order for the qualitative findings to provide further explanation and insights into specific aspects of the initial quantitative phase (Creswell & Plano Clark, 2017). The specific steps to take in order to accomplish this are somewhat left up to the individual researcher, with few detailed examples available to guide the process (Fetters et al., 2013). One tool commonly used in integration practices is a joint display (Guetterman et al., 2015), and this was deemed suitable for the present study.

Contemplation and reflection on the key findings and how they contribute to the overall story that is being captured is an integral part of the integration process. I approached integration much like a qualitative analysis, as it is in essence interpretative. Multiple sources of information are brought together, and it is important to demonstrate that the claims being made are tied to the findings of the research, and then presented with context by incorporating other relevant information and literature. Journaling during this process, and being transparent in deriving recommendations from the data, assisted me in being able to ensure the rigour of the process. To support the facilitation of this process, I developed a joint display with additional columns than previously observed in other studies (refer Table 26). The process of the integration (Table 24) and descriptions of each column used in this analysis (Table 25) are outlined below.

Table 24.
Integration of Quantitative and Qualitative Data Instructions

Step	Integration activity
1	Summarise the key findings from the quantitative phase. Order according to hypotheses of the phase, followed by other additional key findings.
2	Connect findings from the qualitative phase that give further explanation and depth of understanding to the Phase 1 findings.
3	Consider the additional insight gained by the qualitative findings in relation to the initial quantitative findings. This is a process of interpretation of the bigger picture the two data sources indicate. This is approached in a qualitative analysis manner, as it is interpretative in nature. This also necessitates the use of rigor methods relevant for qualitative research, such as reflexive journaling and triangulation (Mauthner & Doucet, 2003).
4	In reference to the integrated insight from both data sources, identify the key areas of change that require attention.
5	In reference to the key areas that require attention, pose developmental change strategies. These strategies are aimed at developing smaller and specific parts of the existing system in order to attend to identified issues.
6	Through reflection and reference to second-order change principles, community psychology and conditions of thriving, identify the areas where transformation is needed, building on the developmental strategies.
7	In reference to the identified areas where transformation is needed, pose transformational change recommendations. These recommendations are focused on broader, holistic change of the systems themselves, such as culture, policy and legislation, values, and worldviews.
8	Describe each recommendation in full, including connected contributions from existing literature.
9	Provide a summary of the recommendations to participants as part of the participant validation process. Incorporate feedback into the final recommendations.

Table 25.
Description of Column Focus in the Joint Display

Column name	Description
Quantitative	Contains summarised results of quantitative Phase One, attending to each hypothesis.
Qualitative	Contains summarised findings of qualitative Phase Two. Phase Two findings (in the form of themes identified in the analysis) have been mapped onto findings identified in Phase One. This is illustrated by associated findings across phases sharing the same row.
Integrated insight	Reflections on how the qualitative findings provide further insight and explanation to the quantitative findings. The interpretation of the linked findings allows for the mixing of the methods. The focus is to question ‘what is here that is more than just the sum of the parts?’ Integrated insights offer further extrapolations on the meaning of the results and findings <i>across</i> phases of research.
Key changes required	Identify areas that need to be targeted for change strategies.
Recommendations	First-order ‘Developmental’ (immediate changes that can be implemented in the short term) and second-order ‘Transformational’ change (longer term cultural changes that take time) recommendations that target the key changes required.

Table 26.

Joint Display of Phase One and Two Integrated Findings and Recommendations

Quantitative	Qualitative	Integrated insight	Key changes required	Recommendations	
<ul style="list-style-type: none"> • H1: Sense of community did predict mental health outcomes. • Sense of community at home did not contribute unique variance in the model. 	<ul style="list-style-type: none"> • Specific challenges to being disconnected from home community, including having something to come home to that is meaningful. • Need for a more sustainable roster and reliable communication facilities. • Take it or leave it culture that demands production at all costs. 	<ul style="list-style-type: none"> • There are obstacles in connecting to home community. It has the capacity to make a difference. • A need for a more humane approach to the work lifestyle, where people’s community and social support needs are prioritised. 	<ul style="list-style-type: none"> • Community connection is needed to be built up at home. • Prioritising workers’ community and social needs within the organisation. 	<p style="text-align: center;">Developmental</p> <ul style="list-style-type: none"> • Cultivate connections in the home community. • Develop standardised limits on roster and shift length. • Develop opportunities to socialise and connect on-site. 	<p style="text-align: center;">Transformative</p> <ul style="list-style-type: none"> • Prioritise people over production. • Cultivate sense of community
<ul style="list-style-type: none"> • H2: Perceived social support did predict mental health outcomes. • The strongest predictor of mental health outcomes in the model changed from on-site specific factors in time 1 to perceived social support in time 2. 	<ul style="list-style-type: none"> • Continued connection, and Sites set on community. • Resistance by workers towards formal support, seeing it for others but ‘not for me’. • Preference for relationships and social support, over formal supports which are Useful but I don’t use it. • the Support ‘fit’. 	<ul style="list-style-type: none"> • Social support maintain home and site. • Ties with the community are important. 	<ul style="list-style-type: none"> • Consistency in the opportunity to bond on-site. • Consistency in purpose at home, and connection with people at home. 	<ul style="list-style-type: none"> • Develop opportunities to socialise and connect on-site. • Provide employer support of employee health and wellbeing. • Cultivate connections in the home community 	<ul style="list-style-type: none"> • Prioritise people before production. • Transform hyper-masculine work culture. • Cultivate sense of community.
<ul style="list-style-type: none"> • H3: FIFO on-site lifestyle satisfaction did predict mental health outcomes. 	<ul style="list-style-type: none"> • Having communication facilities and leisure spaces on-site were important to participants. 	<ul style="list-style-type: none"> • The facilities on-site matter, as well as the culture. 	<ul style="list-style-type: none"> • On-site hyper-masculine culture requires change 	<ul style="list-style-type: none"> • Develop opportunities to socialise and connect on-site. 	<ul style="list-style-type: none"> • Cultivate sense of community. • Prioritise people before production.

Quantitative	Qualitative	Integrated insight	Key changes required	Recommendations	
	<ul style="list-style-type: none"> The culture on the site was described as hyper-masculine. 	<ul style="list-style-type: none"> Hyper-masculine culture was described as unhelpful. 	<ul style="list-style-type: none"> Facilities on mine site must be considered. 	<ul style="list-style-type: none"> Including the leisure spaces to facilitate this. Provide employer support of employee health and wellbeing. 	
<ul style="list-style-type: none"> H4: Alcohol was a weak predictor of mental health outcomes. 	<ul style="list-style-type: none"> Money doesn't buy happiness and often alcohol was used as a distraction. At home and on-site, drinking was a way to be with other people and socialise. Something to come home to told the narrative of the benefits of having structure at home 	<ul style="list-style-type: none"> Although alcohol use was not a strong predictor in the model, participants described drinking as a necessary part of bonding on-site and at home. Over reliance of alcohol for social connection. 	<ul style="list-style-type: none"> Sense of purpose, and occupation at home to facilitate the transition. Activities that are more diverse. 	<ul style="list-style-type: none"> Cultivate connections in the home community. Opportunities to socialise and connect on-site (particularly, opportunities that are not alcohol related) 	<ul style="list-style-type: none"> Cultivate sense of community. (Focus here for Influence, and Fulfilment of needs, in order to promote sense of purpose in life).
<ul style="list-style-type: none"> Lower levels of perceived social support and life satisfaction than general population. 	<ul style="list-style-type: none"> Distinct stories of loneliness and isolation, a sense of being ultimately on your own. The sprint and a sudden stop of the lifestyle making it difficult to form continuity in life. Need a sustainable roster in order to connect to social support networks. 	<ul style="list-style-type: none"> In order to increase social support, need time to nurture connection in relationships. There are factors that can be changed – roster length, shift length, where and how people can communicate with friends and family back home. Cultural factors relating to hyper-masculinity, in detachment from emotion and demand for strength, less chance of help seeking. 	<ul style="list-style-type: none"> Pragmatic changes to work conditions to allow time for community and connection. 	<ul style="list-style-type: none"> Develop standardised limits on roster and shift lengths (capped at 2 weeks on-site), for construction and operations. Provide employer support of employee health and wellbeing. Cultivate connection in the home community. 	<ul style="list-style-type: none"> Cultivate sense of community. Transform hyper-masculine work culture.

Quantitative	Qualitative	Integrated insight	Key changes required	Recommendations	
<ul style="list-style-type: none"> Higher levels of depression and anxiety than general population 	<ul style="list-style-type: none"> Hyper-masculinity breeding silence and forming a culture on mine sites. Perpetuating the sense of there being no way out. Enter with an exit plan to assist workers exist the industry. 	<ul style="list-style-type: none"> Hyper-masculine culture contributing to ill mental health. 	<ul style="list-style-type: none"> Cultural change associated with FIFO, and what it means to be FIFO is required. Lifestyle preparation for exiting the industry is required. 	<ul style="list-style-type: none"> Facilitate preparation for living FIFO. This needs to include pre-commencement training, including content on budgeting and living within means, education and training opportunities, career planning, family planning, maintaining relationships, maintaining community engagement. 	<ul style="list-style-type: none"> Transform hyper-masculine work culture. Prioritise people before production. Cultivate sense of community.
<ul style="list-style-type: none"> Women had lower levels of sense of community on-site in comparison to men 	<ul style="list-style-type: none"> It's a man's world after all Commentary about numerically being unbalanced on-site. This numerical imbalance would contribute to a lower sense of community. Sites set on community 	<ul style="list-style-type: none"> Not many women are employed here, there is a sense of being 'outnumbered'. Harassment, discrimination – this would make SOC a challenge on-site. Need to hire more women to counteract this, and perhaps alter the culture here. 	<ul style="list-style-type: none"> Hiring practices. Culture of discrimination. 	<ul style="list-style-type: none"> Hire more women to balance the gender ratio across categories of employment. 	<ul style="list-style-type: none"> Transform hyper-masculine work culture.
<ul style="list-style-type: none"> Single people had lower sense of community and lower perceived social support in comparison to partnered 	<ul style="list-style-type: none"> Something to come home to often was posed as being a family, or an existing structure, that facilitated the transition. Money doesn't buy happiness, need other 	<ul style="list-style-type: none"> Relationships offer foundation, can assist with social support, buffer stress. Through this, could ease the transient nature of the work. 	<ul style="list-style-type: none"> Communication facilities. Ties to the community 	<ul style="list-style-type: none"> Develop opportunities to socialise and connect while on-site. Active facilitation of this, and provision of facilities for this (such as reliable phone and internet). 	<ul style="list-style-type: none"> Prioritise people before production. Cultivate sense of community.

Quantitative	Qualitative	Integrated insight	Key changes required	Recommendations	
	things in life to feel fulfilled. • <i>Sites set on community</i>			• Cultivate connection in the home community.	

Note: Bolded italicised text described in Qualitative column are specific theme names identified in the thematic analysis.

11.5 Participant Validation

Participants who registered their interest to be involved in providing feedback on the final findings were emailed a summary of the research findings and recommendations (refer to Appendix A for summary of findings). A total of 235 participants were contacted with the summary of findings, and seven participants responded with feedback and comments. The feedback included highlighting the importance of financial planning in starting and ending FIFO (“barefoot investor style”), as well as considering (perhaps for a future study) the impact on individuals and families when someone working FIFO ‘returns to normal life’ when transitioning from FIFO work to local work. Other feedback included the desire to find out if there were particular positions or levels within an organisation where issues were more pronounced. Other comments included a hope that the findings from the study could contribute to change in the industry, and better mental health support for people undertaking FIFO. The feedback highlighting the importance of financial planning, and support for transitioning from FIFO to local work was included within the recommendations.

11.6 Recommendations

Recommendations are posed with reference to the corresponding level of change (Levy, 1986a), and supported with evidence from a range of positive, social, and community psychology literature, as well as general research findings specific to the area of FIFO.

11.6.1 First-order change: Developmental

Due to the urgency of the situation, there is a need to provide immediate strategies that are developmental in nature. These strategies are posed with the intention that they address immediate and critical issues within the industry, while also having the capacity to contribute to more complex cultural and transformative changes within the industry.

11.6.1.1 Recommendation One: Cultivate connection in the home community

It is recommended that connections in the home community are actively cultivated. Phase one findings saw sense of community at home removed from the structural model due to a non-significant pathway coefficient. The mean scores indicated that sense of community at home was marginally higher than sense of community on-site. Sense of community on-site and at home were moderately associated, however, sense of community on-site was more strongly associated than sense of community at home with other variables (depression,

anxiety and stress, satisfaction with life, FIFO on-site lifestyle satisfaction, and perceived social support) (Refer Chapter 7). With the integration of qualitative findings it was suggested that a sense of community at home is a resource that is desired as support, but one that has a number of obstacles in obtaining. It appears that sense of community within the home context is a beneficial resource that people who FIFO are perhaps not fully utilising due to the nature of the transient lifestyle demanded by FIFO schedules. The qualitative findings also suggest that finding ways to draw on this resource is wanted, with a need to have *something to come home to* and standardised limits on rosters and shifts suggested by the participants (as discussed in Recommendation Two).

Developing connection in the home community seeks to ameliorate the *sprint and a sudden stop* cycle of returning home after a swing on-site. Key investment and attention are needed to promote structure and purpose during the time spent at home, which is flexible enough to adapt to the FIFO lifestyle. Having *something to come home to*, as well as roster schedules that allow for more length and regularity of time spent in the home community, may assist those who FIFO in participating in their communities and meaningful activities.

A particular connection to home community that was raised by participants in the qualitative component of the study was the desire to participate in ongoing volunteer work. Participating in volunteer activities has been found to be particularly beneficial for mental health (Jenkinson et al., 2013; Son & Wilson, 2012). There is an opportunity for employers of FIFO workers to form partnerships with volunteer organisations to promote their staff to engage in a volunteer role in a flexible schedule (perhaps sharing a role with someone else if a weekly commitment is needed). Partnerships with local governments, or education of the workforce on opportunities to be of service in their communities, is recommended. As a starting point, the community portal *Do Something Near You* (www.dosomethingnearyou.com.au) could be used to find engagement opportunities.

There is also potential for employers of FIFO workers to form partnerships with community organisations to allow their staff to engage in leisure activities that fit with their unique schedule. An example of this has been the introduction of FIFO gym memberships, where the cost of a membership is based on the number of weeks the person is rostered to be at home, therefore saving someone the cost of paying for a membership during a time they are unable to use it (see, for example, <http://www.southwestsportscentre.com.au/Pages/FIFO-memberships.aspx>).

A website called *This FIFO Life* (www.thisfifolife.com) was constructed and funded by the Western Australian Mental Health Commission after the government inquiry report was released (Education and Health Standing Committee, 2015) and includes articles, information and resources about the FIFO lifestyle for bosses, FIFO workers, family and mates. There may

be opportunity for greater utilisation of this website as an information hub to connect people who FIFO with activities, events, and educational opportunities to participate in during their time off, as presently the website has not been updated in over a year. For example, information from the Western Australian Act Belong Commit mental health promotion campaign (www.actbelongcommit.org.au) could be linked. Information regarding activities that can be done ad hoc and do not require weekly commitments (e.g. golf, sailing, hobby group meet ups, book club, swimming, tree planting, community gardening) could also be included. Through linking people who FIFO to community activities, there is potential propensity to reduce the transition disruption within the lifestyle, and support people to find meaningful engagement in their time off.

11.6.1.2 Recommendation Two: Develop standardised limits on roster and shift length

It is recommended that sustainable FIFO roster and shift lengths are standardised across the industry. These are posed to be implemented by employers and supported by industry policy. The characteristics of this recommendation incorporate a two-week limit on-site, with a cap of 12 hour shifts with consideration of commute time factored in to the shift hours. The three most recommended roster schedules, as articulated by participants, were: two weeks on-site, two weeks at home; two weeks on-site, one week at home; eight days on-site, six days at home. The characteristics of what is considered to be a sustainable roster by participants in this project is a limit of no more than two weeks rostered on-site for work, with at least one week rostered off to be at home. The opportunity to have equal time rosters was also highlighted as desirable, meaning if a person is rostered on-site for two weeks it would be followed by two weeks at home. The popular eight and six roster (eight days on-site, six days at home) was the most desirable roster that was currently available and commonly used in the industry. The purpose of developing sustainable roster and shift practices is to manage fatigue, and promote connection to community and social networks. A key element of this is consistency, whereby employees working in all areas including operations, office positions, and construction are offered sustainable rosters and shift lengths in order to target challenges reported across the workforce.

Fatigue is a recognised ongoing issue within the FIFO workforce (Misan & Rudnik, 2015; Muller et al., 2008). A main contributor to ongoing fatigue is high compression rosters, meaning that a person spends significantly longer periods of time on-site than they do in their home communities (Henry et al., 2013). The existence of rosters where four weeks is spent on-site and one week at home are considered to be unacceptable due to unmanageable fatigue (Education and Health Standing Committee, 2015; Misan & Rudnik, 2015). Having consistent

and standardised limits placed on work rosters and shifts across the industry is recommended in order to reduce the level of fatigue for workers, which in turn can positively impact on mental health, stress, and safety issues (Henry et al., 2013).

In addition to reducing fatigue, sustainable roster practices are recommended in order to support adequate contact with friends and family networks. Having contact with social networks assists in bolstering social support, which in turn supports mental health and reduces stress (Chen, Siu, Lu, Cooper, & Phillips, 2009; Considine et al., 2017). In order to promote membership to a community, a person must have a presence and make a contribution to that community (McMillan & Chavis, 1986). Time spent with others strengthens social support and social capital (Kawachi & Berkman, 2001), as social network participation is needed in order to foster strong social ties and therefore support. This standard industry limit on roster and shift lengths is proposed in order to maximise the connection to social network and mitigate fatigue.

11.6.1.3 Recommendation Three: Develop opportunities to socialise and connect while on-site

It is recommended that opportunities to socialise are facilitated for staff on-site. In addition to this, facilities are needed in order to provide adequate internet and mobile phone service for connecting to family and friends off site. These are recommended in order to develop the opportunities and resources to connect with friends and family at home as well as others on-site. By considering these together, social connectedness is aligned with the understanding of FIFO as a lifestyle, and seeks to bridge the dual locations of relationships for people who FIFO. In essence, being able to engage in social connection is needed for both the group of people who are on-site, as well as being able to engage with friends and family at home.

The infrastructure for mine sites and mining accommodation camps can impact the level of socialising that occurs (Perring et al., 2014). Providing facilities for leisure time on-site, particularly spaces that are comfortable and appealing, may enable workers to connect with workmates and unwind in a setting that does not involve alcohol or meals. As alcohol consumption has been identified as an ongoing concern for people who FIFO (Tynan et al., 2017), providing alternative spaces for leisure on-site away from the traditional 'wet mess' is recommended.

The benefits of increased connectivity and opportunity to socialise include increased perception of social support, which is known to be a protective factor that fosters wellbeing and buffers stress (Feeney & Collins, 2015). Workplace relationships are important for

employee wellbeing and job satisfaction, and are integral to promoting employee happiness which in turn promotes productivity (Oswald, Proto, & Sgroi, 2015).

11.6.1.4 Recommendation Four: Facilitate preparation for Living FIFO

It is recommended that standard preparation practices for new FIFO employees be implemented. Pre-commencement training has been adopted as a common practice, however participants described this as being somewhat inconsistent and variable from company to company. This was also reported to be variable depending on the time and climate of the industry, as needs for staff and available resources to provide appropriate pre-commencement training fluctuate. There is also a need to ensure pre-commencement training is comprehensive and holistic. In this way, pre-commencement training is contextually relevant for commencing and planning to exit a FIFO lifestyle, rather than constructing it for only the role on-site.

The recommended core components of pre-commencement training are support and management strategies for mental health, physical health, financial planning, maintaining healthy relationships, community engagement, and how engaging in this lifestyle fits in with long term meaningful personal goals. In this way, pre-commencement training for people who FIFO is framed to recognise that FIFO is a lifestyle, and therefore incorporates the diverse facets of life, rather than focusing solely on time spent on-site.

Having pre-commencement training may also assist people to *Be a facilitator*, empowering those living FIFO to maintain their autonomy and choice in how they continue or discontinue FIFO employment. Understanding the cyclic nature of the industry is paramount in order for new FIFO employees to have an informed perspective and therefore make contextually appropriate plans. Approaching FIFO as a lifestyle will assist people first engaging with these roles in conceptualising each area of their lives and prompt consideration of how best to manage them. Expectations of beginning FIFO and how this will inevitably change every aspect of current life circumstances is important for adequate preparation. A significant area to consider, as raised by participants, is financial planning. It is therefore recommended that employers connect new and existing workers with financial planning services, and resources (for instance, www.moneysmart.gov.au or *Barefoot Investor* www.barefootinvestor.com).

Further information regarding the approach to living FIFO could be disseminated through online avenues, such as *This FIFO Life*, as well as through peer support programs offered by employers. As consideration and management of FIFO life is anticipated to be ongoing, having sufficient information to guide this process is likely to be beneficial. Through connecting people who are beginning in their FIFO role with those who have been working

FIFO for a length of time, social support can be offered, as well as guidance and assistance with adjusting to the lifestyle and utilising appropriate strategies.

Company contributions to adequately preparing employees can also involve altering the conditions of the lifestyle in order to lessen challenges. Through implementing *Sustainable rosters* the FIFO lifestyle itself is likely to be easier to manage, and therefore preparation for the challenges of the lifestyle can be reduced or altered. By assisting people engaging with a FIFO lifestyle through adequate preparation and mitigation of known challenges, mining companies have the potential to diversify *The FIFO type*, making the lifestyle more sustainable and attractive to a wider range of potential future employees.

11.6.1.5 Recommendation Five: Hire more women

It is recommended that workplace equality and inclusion initiatives commit to balancing the gender ratio of on-site roles on mine sites. This needs to be considered in each category of employment in order to promote balance in office, field, and operations areas of the organisation. In 2016, women comprised 12.9% of mining employees, which was a 0.9% growth since 1995 (Workplace Gender Equality Agency, 2016). The numerical imbalance of staff in mining contributes and perpetuates the hyper-masculine culture that has come to be accepted and expected as part of mining (Carrington et al., 2010; Ennis & Finlayson, 2015; Laplonge & Albury, 2013).

Laplonge (2016) outlined the importance of drawing on the wider knowledge body of gender research when considering how to manage women's contribution in the male dominated resources industries. The Australian Human Rights Commission published a toolkit for women in 2013, which aimed to provide strategies to increase gender diversity (Laplonge, 2016). However, the strategies proposed did not fully integrate the influence of the mining culture, and placed the responsibility on women to change in order to fit the demands of the industry.

The understanding of gender being performative, whereby people are 'doing' gender rather than 'being' gender, outlined by West and Zimmerman (1987) highlights the importance of targeting further cultural normative expectations of gender. This is particularly so for the pervasive hyper-masculinity present in mining culture (Pini & Mayes, 2012), as the dominance of masculinity has impacted the attraction and retention of women in the resources sector (Chamber of Minerals and Energy of Western Australia, 2008; Pirotta, 2009). Dedicated efforts to increasing the number of women in this industry is undoubtedly tied to the need to transform the current culture. Transforming this hyper-masculine culture is further explored in terms of second-order change in Recommendation Seven.

11.6.1.6 Recommendation Six: Provide ongoing employer support of employee health and wellbeing

It is recommended that employers of people who FIFO commit to efforts to support employee health and wellbeing. This can be approached through multiple avenues, firstly, through company policy that supports the developmental changes in Recommendations Two through Five. Given the context of concerning reports of suicide deaths (Education and Health Standing Committee, 2014), accompanied by higher rates of depression and anxiety coupled with lower levels of support in comparison to the general population found in this study, further explained in the theme *No way out*, policy and procedures for the event of suicide is urgent. Current research in the area of FIFO as well as parliamentary inquiry into the issue of FIFO mental health highlights the importance of having effective policy and procedures in the event of suicide, however, it is not able to be confirmed if these policies and procedures are adequately in place across the industry (Education and Health Standing Committee, 2015; Parker et al., 2018).

Secondly, approaching the support of employees through encouraging self-care, companies can shift management and leadership messaging to highlight that the wellbeing of staff is a priority. Research has shown that significant stressors for people who FIFO are related to the stigmatisation of mental health (Bowers et al., 2018). Thus, preventative and promotional strategies must be utilised. This includes offering a range of support, formal and informal, to fit diverse workforce needs. As outlined in the contextual challenges for support strategies, *It's useful but I don't use it* and *Support fit* are important to consider in the provision of support. Encouraging the identification of the need to engage with support, as well as providing and promoting a diverse range of support sources is therefore relevant to include in the ongoing support of workers (see <http://matesinconstruction.org.au/mining/>).

This recommendation is linked with the development of the Department of Mines, Industry Regulation and Safety's 'Code of Practice: Mentally healthy workplaces for fly-in fly-out (FIFO) workers in the resources and construction sectors' (Commission for Occupational Safety and Health, 2019). The code adopts the Risk Management Framework, upheld by the International Organisation of Standardisation (www.iso.org). Employers are able to evaluate the way their organisation operates at each level. It is recommended based on the findings of this project that particular investment in preventative and protective factors is needed. This involves developing mental health policy, identifying psychosocial risk factors present in the organisation and taking steps to prevent and attend to these risks. A range of resources are available online provided by Department of Mines Industry Regulation and Safety (2019) to assist with implementing this code of practice and developing mentally healthy workplaces

(see <http://www.dmp.wa.gov.au/Safety/Mentally-healthy-workplaces-25121.aspx>). At time of writing, I am currently developing a section on community and social connectedness for this project, informed by the research contained in this thesis.

11.6.2 Second-order change: Transformative

Second-order change is deeper, more fundamental change, and therefore requires a greater amount of time to cultivate. The following recommendations require deeper cultural shifts and will require dedication and intention to bring about. From the integration of findings it was apparent the mining culture steeped in hyper-masculinity was the primary need for change. Hyper-masculinity appeared to shape other aspects of the work culture, from mental health stigma, a disregard for safety, gendered harassment, dismissal of emotional struggle and expression of emotions, and prioritising production and output above people's wellbeing. Further, the way competence was defined in this context was characterised by masculinity, promoting the performance of masculinity to the extent that women were also expected to behave in the same way.

Related to the purpose of recommending the transformation of the hyper-masculine culture, is the recommendation to cultivate sense of community. The findings of this research inform an understanding of the link between the hyper-masculine work culture in mining, and the social and community disconnectedness of people who FIFO experience. As such, the transformative level of change recommendations presented here are posed to empower a broad cultural shift in this context, enabling a safer, more connected, and healthy culture for people who FIFO both on and off the work site.

11.6.2.1 Recommendation Seven: Transforming hyper-masculine work culture

It is recommended that mining companies work to disrupt the hyper-masculine norms that are commonly perpetuated and exacerbated in the mining context and give workers a viable alternative to demonstrating masculinity. Organisational contexts influence enactments of gender, and as a workplace that has high risk for safety hazards and injury, as well as a workforce predominantly made up of men, there is a need to interrupt the current hegemonic masculinity and redefine what it means to be a man in this context. Men's commitment to proving their masculinity to themselves and to others is a central motivation to enact dominant constructions of masculinity and act in alignment with expectations of manliness in this context, whereby being a man means being physically tough and strong, technically infallible, and emotionally detached (Ely & Meyerson, 2010).

Through the theme *Hyper-masculinity breeding silence* participants described the influence of the hyper-masculine culture restricting open communication regarding personal and relationship hardship, mental health struggles, or any indication of not coping. In addition to this, *It's a man's world after all* captured some of the dynamics that occurred on mine sites for women, including harassment of women, devaluing of women's labour, delegitimising women's expertise, and constructing women as visitors within the mining environment. This hyper-masculine culture was identified, overall, as harmful to wellbeing as captured in *No way out*, as well as through the survey findings that people who FIFO experience psychological distress at a rate higher than the general population, and on average a lower level of perceived social support than the general population. Recommendation Seven is posed as a top down systems intervention approach; however, to be sustained it requires bottom up processes including ongoing consultation and participation of the workforce. This means the initial change will need to be driven by management, however as cultural shifts occur, this can be maintained through social processes and participation from employees.

There is some suggestion that the means to transform a hyper-masculine work culture need not be through explicit methods for addressing gender issues at work. For example, Ely and Meyerson (2010) reported how a safety initiative on two offshore oil platforms not only addressed safety issues but unintentionally released men from performative macho gender demonstrations. Previously, the workers would engage in risk taking behaviours, were resistant to acknowledging and/or reporting incidences, were competitive in proving physical strength, were reluctant to admit when they did not know something, and prioritised appearing 'tough' and detached from emotion. These behaviours are all illustrative of hyper-masculinity. Creating a safety culture shifted the hyper-masculine culture to one where it was expected and valued that people were working together towards common goals, were supported in prioritising their personal and team safety, where mistakes were framed as opportunities for growth and learning, and engaged in open and honest communication about their feelings and ideas (Ely & Meyerson, 2010).

In light of this, Recommendation Seven includes guidance for implementing this recommendation, presenting four qualities central to transforming the hyper-masculine work culture that are not direct gender based initiatives: a focus on shared goals that advance collective wellbeing, prioritising people before production, aligning competence with bona fide task requirements, and, promoting a learning approach towards work (Ely & Meyerson, 2010).

Part One: Shared goals that advance collective wellbeing

As part of transforming hyper-masculine culture, it is recommended that companies cultivate collectivistic goals for the company and employees, in order to reorient workers towards the collective good and away from proving masculine traits that put them at risk

(proving physical strength, technical infallibility, and emotional detachment). Compelling collectivistic goals have the ability to supersede image based goals (Crocker & Canevello, 2008), and therefore can disrupt compliance with gender norms (Ely & Meyerson, 2010). In general, collectivistic goals have the power to disrupt these image based goals as they are perceived to be more meaningful and satisfy a human need for relatedness, and are therefore more rewarding (Podolny, Khurana, & Hill-Popper, 2005). It is suggested that collective company goals be focused on safety, community and workers' responsibility to each other, and a broader company mission that encapsulates a contextual social impact (Ely & Meyerson, 2010). This is posed to target the masculine demonstrations of individual strength, risk taking, forcefulness, and competitiveness which can be behaviours to prove masculinity. Through promoting collectivistic goals, companies are able to guide the work culture toward specific values and intentions, which can dually decrease reinforcement for demonstrations of masculinity, and increase reinforcement of behaviours and practices that align with promoting wellbeing.

These collectivistic goals are recommended to be embodied at every level of the organisation, reinforced through norms, practices, policies, and management approach. The company must demonstrate to employees that it is deeply concerned for their safety. This may include de-privileging demonstrations of masculinity (characteristically, proving physical strength or toughness, proving technical infallibility and concern with 'natural knowledge', and being emotionally hardened or detached) in favour of recognition of practices and interactions that demonstrate commitment to the company's goals (behaving in a safe manner, taking care to support co-workers, openly discussing thoughts and feelings, taking opportunities to grow and learn).

How these collectivistic goals are cultivated in the work culture can occur in a range of ways. It is recommended that strategies place the focus on safety and shared goals, and that these are posed in a way to orient workers to contribute meaningfully to the wellbeing for the whole rather than pursuing acceptance and admiration of the self (Crocker & Canevello, 2008). For example, Ely and Meyerson (2010) observed that norms and practices that prioritise workers safety, with managers making clear their concern for workers, encouraging open discourse about emotions and in particular fear and experience of hardship, and normalising workers supporting each other and behaving in a way that honour their responsibility to each other's wellbeing and safety promoted the collectivistic goal of safety. The collectivistic goal of community was embodied through company support of co-worker bonding and relationships, and also through company initiatives to contribute to the wider community. Company engagement in positive social impact was seen as a source of pride for employees, and promoted employee engagement and attraction to the company, and so it is recommended

that companies work towards defining social impact goals with input from their employees, and ensure employees are exposed to the outcomes of these community contributions (Gürlek & Tuna, 2019; Turban & Greening, 1997). On a smaller scale, community goals can be demonstrated through acts of kindness and generosity between staff (Chancellor, Margolis, Jacobs Bao, & Lyubomirsky, 2018) such as rituals of appreciation and acknowledgement of work that was done well and aligned with the company's mission and values, as well as every staff members' input being valued and listened to when decisions were being made.

In the development of these collectivistic goals and how they are embodied, it is recommended that companies utilise community participation strategies (Arnstein, 1969). By developing collective goals and mission statement with employees, partnership and equalising of power and control can be negotiated, to ensure the goals and values and how these are cultivated within the levels of the organisation are meaningful and respected.

Part Two: Prioritise people before production

The evidence gathered in the present study, particularly the reported incidences of mental health issues and death by suicide, suggests that company prioritisation of safety is needed to extend to include mental health and maintenance of social relationships in order to mitigate the specific challenges identified. It is recommended that organisational systems, policies and practices are amended in order to prioritise staff physical *and* psychological safety before production outputs. This is a shift in values which will inform production targets that are realistic to achieve while maintaining adequate conditions for workers. This is posed as a humanising of the work culture, where valued and appreciated employees become more motivated and productive. The benefit of prioritising people before production is therefore mutually beneficial. In this sense, it is more motivating to be an employee who feels valued and is working as part of a team to reach a collective goal, rather than an individual overworking toward an unrealistic target. Developing a mentally healthy workplace can support the wellbeing of people who FIFO, and simultaneously support the prosperity of the employing company. Mental illness conditions cost employers in Australia approximately \$10.9 billion each year through a combination of absenteeism, presenteeism, and workers compensation claims (Price Waterhouse Cooper, 2014). It is estimated that employers who invest in supporting the mental health of their workers on average gain a return on investment of \$2.30 for every \$1.00 invested (Price Waterhouse Cooper, 2014). In the resources sector the return is estimated to be higher, with a return of \$5.70 for every \$1.00 invested (Parker et al., 2018; Price Waterhouse Cooper, 2014).

A way of structuring a shift to prioritise mental health and wellbeing of workers is to commit to developing a mentally healthy workplace that enables workers to thrive. The evidence base supports mentally healthy workplaces as beneficial for both employees and

employers (Petrie et al., 2018), and practical guides and frameworks exist for implementing mentally healthy workplace action plans. *Heads Up*, a Beyond Blue (2019) initiative in partnership with the Mentally Healthy Workplaces Alliance, includes resources and guides for organisations in working towards mentally healthy workplaces (www.headsup.org.au). In addition, the Curtin University Centre for Transformative Work Design's initiative *Thrive At Work* offers guidance and a new framework that highlights work design as a key component of developing a mentally healthy workplace, and enabling workers to thrive (www.thriveatwork.org.au). It is therefore recommended, as part of transforming the hyper-masculine work culture in mining, that companies engage with shifting the priorities and culture of their workplaces to support mental health and wellbeing at the forefront.

Part Three: Definitions of competence aligned with true task requirements

It is recommended that organisational cultural norms and practices are aligned, and endorse a definition of competence that is based on the objective skills and qualities required for the tasks at hand, rather than conflated with demonstrations of masculinity. In this way, there is a shift in understanding of what competence means and looks like, moving away from 'proving competence' and instead focusing on 'improving competence'. In work cultures that are high risk and hyper-masculine, definitions of competence are often conflated with masculine traits, so that to appear competent, a person must appear physically strong, possess innate and infallible knowledge of how to do things, and be emotionally hardened and unflappable (Laplonge, 2011). This however puts workers at risk. Further, this contributes to myths about women not belonging in mining, as well as expectations being placed on women to fabricate masculinity and demonstrate the same masculine traits in order to prove their competence (Pini & Mayes, 2012; Pirotta, 2009).

It is recommended that defining competence within the workplace is linked to the skills and qualities identified as necessary to pursue collectivistic goals. These may include being 'mission driven people', those who care about their fellow co-workers, who are good listeners, thoughtful, willing to learn, facilitate learning for others, even tempered, promote care of self and others, and are team oriented (Ely & Meyerson, 2010). Recognising people who perform quality work and at the same time approach the work in a way that embodies these qualities is needed in order to shift the understanding of competence away from being coupled with masculine traits. Through developing norms and practices that support and endorse these desired qualities as what competence looks like, demonstrations of masculinity will be less likely to be reinforced and therefore will cease to hold currency. By redefining the competence required to align with upholding these qualities and attributes, a shift in understanding of what is necessary to perform the work and undertake FIFO in a safe and effective way can be established. Social processes can reinforce these redefined definitions of

competence, with co-worker esteem being earned by those who are embodying this approach to work and demonstrating competence in this way, and respect being earned by legitimate knowledge, which is in turn garnered through the learning culture (discussed in Part Four).

Leaders in particular must embody these qualities, as they symbolise and communicate the way to approach work and interact with others. Management must teach these qualities, both through formal induction and training processes and also through social processes, to clearly communicate 'how things are done'. The consistency in endorsing this understanding of competence is a requirement for this cultural shift to take place. As part of this consistency, hiring and promotion practices within the company must reflect the upholding of these qualities, so that people who reflect these qualities are the people who are promoted and given recognition. Leaders are recommended to model humility, and be open and honest about their own fallibility and experience of the FIFO lifestyle.

It is further recommended that mining companies demonstrate the importance of embodying these qualities to staff by incorporating this training in work time. By doing this, companies can demonstrate the extent to which they value these attributes, qualities, and skills by paying for staff to attend training. This communicates that this cultural work shift is not tokenism, but is instead a non-negotiable and highly important part of contributing value to the work and team. It is also recommended that company-provided training incorporates areas that assist staff to embody these qualities, such as communication strategies, personal development, mental health and wellbeing, and getting in touch emotionally, as well as opportunities for staff to learn new work-related skills and career development opportunities.

Part Four: Learning approach to work

It is recommended that mining companies cultivate a learning culture that informs a learning approach to work. The cultivation of collectivistic goals and redefined definitions of competence can give workers the motivation and a model for letting go of demonstrating a masculine self-image, and by including a learning approach to work this can give workers ongoing practice in reorientating themselves away from masculine ideals and towards the collective good (Ely & Meyerson, 2010). The intent of the learning culture is to fundamentally shift the focus from proving competence to improving competence. The process of learning is facilitated through and linked to definitions of competence, whereby staff embody the qualities needed to pursue collectivistic goals, and are afforded the psychological safety to enable honesty, interpersonal risk taking, and learning from their experiences (Edmondson, 1999; Ely & Meyerson, 2010). When people perceive something larger than the individual self is at stake (collective safety, collective goals, company mission), learning takes precedence over protecting self-image (Crocker, Niiya, & Mischkowski, 2008). This has the potential to encourage workers to stay informed and self-reflective in service of the collective good.

Psychological safety is a perception by those in a team that the team dynamic and environment is safe for interpersonal risk taking – meaning, the team is a safe place within which to be vulnerable (Edmondson, 1999). Psychological safety is important for creating a climate that facilitates learning. This kind of climate is supported by the definitions of competence and orientation of staff toward shared goals and values, as well as the confirmation that the physical and psychological safety of staff is priority. Psychological safety can allow staff to let go of masculine image concerns and instead focus on meaningfully contributing to the team to achieve shared goals (Ely & Meyerson, 2010).

It is recommended that characteristics of a learning culture are based on psychological safety, as this contributes to an ability to openly admit mistakes, and an overall shift in understanding that mistakes are an accepted fact of life. This further facilitates the training of newcomers, instead of new staff being thought of as hazardous and a liability due to inexperience, this inexperience is appreciated to be a natural consequence of being new, and a legitimate reason for asking for and receiving help from co-workers and management (Ely & Meyerson, 2010). Being process focused, when mistakes occur the person is safe to honestly communicate what happened, and strategies such as root cause analysis (Wu, Lipshutz, & Pronovost, 2008) can be implemented to understand what caused it. By adopting a learning approach to work, there can be a move away from a punitive, blame fuelled approach to mistakes, to a view of mistakes as opportunities to learn and improve competence and efficiency. If the cause is ascertained to be related to lack of skill, lack of knowledge, improper equipment, or engineering issue (Ely & Meyerson, 2010), an appropriate strategy to mitigate the issue can be implemented. This can include upskilling, education and training, equipment maintenance or replacement, a review of process and procedures, and peer support.

The learning culture is proposed to reciprocally be supported by and foster learning behaviours. These include workers seeking and offering advice, all team members' input being solicited based on the understanding that different perspectives are valuable to learning, a lowering of defensiveness in order to appreciate co-worker efforts to help, viewing mistakes as occasions for learning, acknowledgement of own mistakes, and analysing mistakes as a team (Ely & Meyerson, 2010). These learning behaviours are recommended to be further supported by publicly recognising and appreciating those who demonstrate these learning behaviours and actively facilitate learning for others in the interest of valuing safety, community, and the company's overall mission (Ely & Meyerson, 2010).

11.6.2.2 Recommendation Eight: Cultivate sense of community

It is recommended that developing sense of community be a key focus area for people who FIFO, and those who employ and manage people who FIFO. Sense of community can be

positioned as a key outcome, and thus be referred to in order to inform decisions of work conditions and demands, as well as facilities and supports offered by mining companies for staff. By enhancing and further developing conditions that contribute to social connection such as facilities for communication, environments to socialise in, and standardised roster caps, sense of community can be promoted. It is important, however, that this also consider the space and relationships beyond the accommodation quarters, and to also incorporate regional adjacent communities to mine sites. It is recommended that relationships with adjacent regional towns are engaged, and Social Impact Assessments are used to ensure mutual benefit of the mining operations in the area (see for example, Department of State Development Manufacturing Infrastructure and Planning, 2018). Consideration of what is currently offered by companies, and how this could be further developed is necessary for this kind of transformational change to occur.

Promoting membership, reciprocal influence, integration and fulfilment of needs, and shared emotional connection within the FIFO lifestyle can enable workers to gain the protective benefits of sense of community (McMillan & Chavis, 1986). As part of this recommendation it is important to consider what is meant by 'community'. People who FIFO are positioned geographically within two distinct community settings, and also exist in relational communities (Kloos et al., 2012). A key area of concern proposed during the Education and Health Standing Committee (2014) consultation period was the popular use of 'motelling' in FIFO accommodation camps. This practice stipulates that a worker will be housed in a different room each time they return to site, preventing familiarity of their surroundings and development of neighbouring. The boundary-less relational communities are proposed here to assist in bridging the geographical locations in order to enhance workers' sense of community regardless of where they are. However, cultivating a sense of community in all respects is posed in order for the transformational propensity of sense of community to be actualised. This recommendation draws on McMillan and Chavis' (1986) theory of sense of community, and considers the requirements to be part of the community, and adapting how people can participate in the community, how they then can maintain influence and contribution, have needs met, and sustain emotional connection.

The significance of this recommendation is that much of the associated challenges of living FIFO that have been identified in this study are linked to social and community disconnectedness, which suggests a distinct need to transform the social culture of FIFO. Loneliness is a growing issue within Australia, particularly for men (Franklin et al., 2018). As much of the FIFO workforce are men, this is a pertinent issue to consider. The isolated nature of FIFO work in both a geographical and social sense further confirms the importance of seeking to connect people who FIFO to social and community networks in an effort to

decrease loneliness and bolster overall wellbeing. Anecdotal and empirical evidence also suggests that people who FIFO experience ostracism from their communities that also appears to stimulate a lack of compassion for the challenges associated with this lifestyle (Sincovich, Gregory, Wilson, & Brinkman, 2018; Stünzner, 2018). Building stronger connections in the community has the propensity to both strengthen a protective factor, and give structure and meaningful activity for people who FIFO, while also promoting a deeper understanding of this lifestyle in the wider community.

It is recommended that transforming the disconnected social culture of the FIFO lifestyle be a priority. Through a holistic approach to fostering conditions that are conducive to sense of community, given sufficient time and investment, workers have the potential to feel a sense of membership at work and in their home communities; perceive a sense of autonomy, influence and contribution in their environments; feel their needs are met; and experience a shared emotional connection with the people around them. Sense of community must be cultivated, meaning that it cannot be forced, and must be given adequate conditions and time to develop organically.

The elements of sense of community are interconnected and dynamic, working together to foster and preserve a sense of community. The elements of sense of community described by McMillan and Chavis (1986) explore distinct feelings of belonging, being open to reciprocal power and influence in the community, mutual need fulfilment and perceived support, as well as sharing experiences, history, and a kind of spiritual bond among members. As strategies to build these factors of sense of community, it is recommended that inspiration is drawn from the community wide initiative of Act Belong Commit, which has been found to be one of the most popular health promotion campaigns in the literature since being developed in Western Australia and being adopted globally (Donovan, James, Jalleh, & Sidebottom, 2006; Santini et al., 2017). This campaign posits a range of ways to participate in community that can promote membership, integration and fulfilment of needs, reciprocal influence, and shared emotional connection. 'Act' includes to strive to keep physically, socially, and cognitively active, and can be achieved through basic activities such as going for a walk, visiting museums, taking a course, reading, or visiting friends. 'Belong' refers to increasing engagement with others and becoming a member of a group or organisation through which, a person can feel a heightened sense of connectedness and strengthened sense of identity. These activities can be aligned with individual values and interests, and include joining a book club or exercise group, sports club, hobby group, and be involved in local government or community activities and events. 'Commit' is the extent to which people involve themselves with a cause, activity, or organisation. Commitment to a goal or challenge can provide an overall meaning in life and sense of purpose, which is beneficial for general wellbeing (Martela

& Steger, 2016). This aspect of 'Commit' can also be done through contributing to a social or environmental cause, volunteering for a charitable organisation, or participating in fundraising. Volunteering for an organisation or cause has been found to have positive benefits for wellbeing and satisfaction with life (Jenkinson et al., 2013). Committing to personal goals such as completing a fun run, learning a new skill (such as an instrument, painting or woodworking), or dedicating time to home or garden improvements. In a cumulative effect, participating in a range of activities in communities can invigorate a sense of emotional connection in community for the individual as well as for community partners, of which mining companies are recommended to become.

Through investment in community activities and development, individuals are able to meaningfully engage with others and be supported in this engagement by mining companies offering the structure and sharing of opportunities through which their employees are able to engage in community. This information sharing is an integral part of this development, as it is clear that people who FIFO are at times unsure of what they are able to connect to and participate in. It is hence recommended that mining companies are facilitators in connecting their staff to community at home, and also provide the space and bonding opportunities for community connectedness on-site. Including within the preparation for living FIFO the importance of maintaining wellbeing through engaging with community can set a precedent for how FIFO is best lived. Continuing to build relationships with neighbouring regional towns close to mine sites will further assist in this shift of social culture for people who FIFO.

11.7 Handover

In this chapter a series of recommendations were developed and targeted for two levels of change. These recommendations are posed as developmental and transformational strategies through which to improve the FIFO lifestyle. A summary of the recommendations is provided below:

Developmental - First-order change

- Recommendation One: Cultivate connection in the home community
- Recommendation Two: Develop standardised limits on roster and shift length
- Recommendation Three: Develop opportunities to socialise and connect while on-site
- Recommendation Four: Facilitate preparation for living FIFO
- Recommendation Five: Hire more women
- Recommendation Six: Provide ongoing employer support of employee health and wellbeing

Transformational – Second-order change

- Recommendation Seven: Transforming hyper-masculine work culture
- Recommendation Eight: Cultivate sense of community

Through these recommendations, an alternate way in which FIFO work is undertaken and experienced is posed. Through having more balanced roster schedules and shifts, people who FIFO are afforded more time to form connections in their home communities and participate in social activities on-site. Having a work culture that promotes community, learning, and safety rather than reinforcing hyper-masculinity, with a gender balanced work force, people who FIFO can engage in work in a different and more meaningful way. The preparation of people who are starting out in their FIFO lifestyle, with mining companies supporting workers to connect to their social and community networks, people who FIFO are more likely to thrive and be able to sustain this lifestyle in a balanced way. This has benefits for both the worker and the mining company since a workforce that is thriving has higher levels of wellbeing as well as productivity. In the following Discussion and Concluding Comments chapter, I will discuss the key contributions of this project to the broader academic body of literature, reflect on future directions, and consider the strengths and limitations of this study.

Chapter 12 Discussion and Concluding Comments

The key to the happy life, it seems,
is the good life.
A life with sustained relationships,
challenging work,
and connections to community.
- Paul Bloom (2009)

12.1 Summary of Research Findings

The aim of this project was to understand how to strengthen social and community connectedness and transform work conditions of FIFO in order to optimise wellbeing. The attention to protective factors focused the study on the propensity of sense of community, social support, and on-site lifestyle conditions for supporting mental health for people who FIFO. The project was conducted in three phases to meet four objectives (see Figure 24).

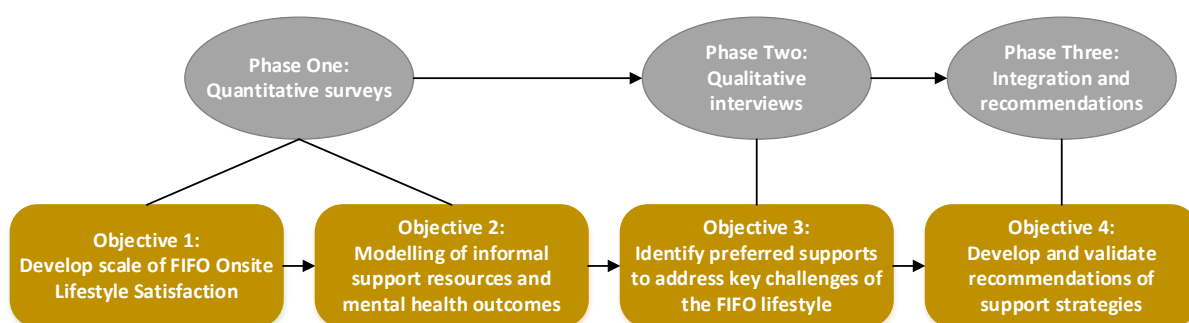


Figure 24. Flow Diagram of Project Phases and Objectives All Objectives Addressed

The first two objectives were met in Phase One. A FIFO On-site Lifestyle Satisfaction Scale was developed which demonstrated good psychometric properties (Objective 1). Informal support resources and mental health outcomes were modelled (Objective 2). Results showed that participants had higher levels of depression and anxiety, and lower levels of social support and satisfaction with life than general population studies. Informal supports were predictive of mental health outcomes, indicating that social and community connectedness and on-site lifestyle factors have the propensity to support wellbeing for people who FIFO. Follow up analysis indicated that informal supports at Time 1 accounted for approximately

22% of the variance in Time 2 depression anxiety and stress, and satisfaction with life, suggesting that informal supports were important for sustaining wellbeing over time.

The aim of Phase Two was to gain greater depth and explanation of Phase One results, and explored the key challenges and support strategies for living FIFO to meet Objective 3. Themes relating to the challenges of FIFO included the inflexible nature of FIFO work, association with suicide, and issues with hyper-masculine work culture. Themes relating to strategies included ways to facilitate the lifestyle to maintain autonomy, enhance connection with social and community networks, and build mine site camps to foster sense of community.

Phase Three focused on the integration of Phase One and Phase Two findings, using integrated insights to inform the development of final recommendations (Objective 4). A novel form of integration extended on previous methods by adapting a joint display to include the Community Psychology principle of multiple levels of change to develop recommendations of support strategies for people who FIFO. These recommendations then underwent respondent validation, and participant feedback was incorporated. Final recommendations included promoting sustainable work practices, supporting social and community network connections on and off site, developing sense of community, and transforming the hyper-masculine work culture.

12.2 Implications of Research Findings

Findings from this research have methodological, theoretical, and applied implications. As such, the novel contributions of this research will be described in relation to these three areas. Methodological implications refer to the novelty of the study design in the FIFO context, and extending upon integration methods. Theoretical implications position these findings within the existing body of literature, identifying areas where this study has advanced the knowledge base. The applied implications align with the Community Psychology theoretical grounding of the study, as it is centrally concerned with action, and describes the translational utility of these findings. The overall significance of this research is the focus on action and using a strengths-based approach, by informing directions and strategies that target supporting wellbeing for people who FIFO.

12.2.1 Methodological implications

Employing mixed methods and particularly the utilisation of an explanatory sequential design (Creswell & Plano Clark, 2017) in the context of promoting wellbeing for people who FIFO is a novel endeavour. Existing studies that include both quantitative and qualitative elements do so in a manner that resembles multiple methods, rather than an integrated mixed

methods design (for example, Parker et al., 2018). The dedication to integration and truly 'mixing' the quantitative and qualitative elements of this current research (Gilbert, Roberts, & Dzidic, 2018) has resulted in a deeper and more grounded understanding of the FIFO experience, and what is needed in terms of change at developmental and transformative levels. The sequencing of this project encompassed a flow of intent, from understanding the broader picture in terms of challenges and support, and taking these to the next phase to specifically ask participants embedded in the context of FIFO about their experiences and needs to inform the development of strategies for change.

A particular methodological advancement in this project was the method of integration, whereby I extended upon current joint display methods to incorporate a Community Psychology theoretical perspective (Guetterman et al., 2015). The addition of the 'Integrated insight' and 'key areas for change' columns in the joint display allows for greater transparency of the process of integration for readers, while also providing a base to guide considerations of the findings together and identify where these insights could be applied. Taking these key areas for change, the recommendations are then posed at first-order and second-order levels of change (Levy, 1986a; Scott & Wolfe, 2014). This integration method has already been adopted by other students and researchers (e.g. Bullen, 2019).

A further methodological advancement of this study was the development of a new FIFO on-site lifestyle satisfaction scale, acknowledging FIFO as a lifestyle that is beyond job satisfaction, and includes on-site life (refer Chapter 6). Other studies have measured satisfaction with FIFO in relation to isolated factors such as job satisfaction and turnover intention (for example, Barclay et al., 2016), while the FOLSS extends this to measure aggregated satisfaction on key on-site lifestyle factors, including current position, income, support from the company, camp environment, social opportunities, and FIFO roster. This can aid future FIFO research by offering a FIFO specific scale, which incorporates both work conditions and lifestyle factors relevant to on-site life, giving insight into FIFO specific experiences that were previously unavailable in a short measure.

12.2.2 Theoretical implications

Within the context of FIFO literature, the majority of studies focus on measuring the breadth and magnitude of problems and psychological distress (for example, Considine et al., 2017). In contrast, the basis of this research was to look beyond measuring the individual experience and documenting hardship and look towards the propensity of social and community connectedness to mitigate the risks to wellbeing that are associated with FIFO. The project is novel in utilising a strengths-based approach, and Community Psychology theory in the context of FIFO. Based on this research I have proposed change at both first-order and

second-order change levels, with the aim of informing how to strengthen social and community factors that support overall wellbeing. Based on the findings from this study I extend upon the current body of literature in the area of FIFO and mental health. The contribution of my research will be discussed in relation to key points of interest in the knowledge base of FIFO literature: substantial instances of poor mental health in the workforce, issues with family and interpersonal relationships, alcohol use, FIFO lifestyle factors and work conditions, financial matters, masculinity and safety, and women's experiences.

Substantial instances of poor mental health in the workforce. Findings from this project are consistent with other research in the area that acknowledge people who FIFO do experience higher levels of psychological distress than the general population (Bowers et al., 2018; Education and Health Standing Committee, 2015; Gardner et al., 2018; Parker et al., 2018; Velandar, Schineanu, Liang, & Midford, 2010; Vojnovic & Bahn, 2015). This study extends on this knowledge base by demonstrating that people who FIFO also experience lower levels of social support and satisfaction with life than the general population.

Current research suggests that loneliness is a growing issue, particularly for Australian men (Franklin et al., 2018). The current research extends this by integrating this contextual knowledge with the unique challenges of FIFO and affirms the need for intentional community engagement initiatives for people who FIFO. The FIFO population constitutes a demographic of mainly men aged 25-45, which aligns with the demographic at greatest risk of suicide. Loneliness is an identified risk factor for suicide, as such the concern remains that a workforce with a demographic already at risk of suicide and loneliness are then placed in a context which is known to further exacerbate loneliness (Parker et al., 2018). Given the concerning associations with perpetual loneliness, it is urgent that strategies for increasing the community and social connectivity for people who FIFO are planned and implemented. Future research should focus on evaluating the effectiveness of strategies to promote social and community connection, which are accessible and attractive for this workforce demographic to decrease experiences of loneliness.

Issues with family and interpersonal relationships. Findings from this project are consistent with research that highlights disconnection from family and other interpersonal relationships as a key challenge of working FIFO (Franklin et al., 2018; Gallegos, 2005; Henry et al., 2013; Kaczmarek & Sibbel, 2008; Parker et al., 2017). This project extends this by specifically looking at social and community connectedness and how this can be enhanced for people who FIFO, and describes ways this could be worked towards. Particularly, the findings in this study highlight the need for continued connection, and something to come home to, to support social and community connectedness. One promising future research direction is to conduct social network analysis (Scott, 1988) to further explore the social and community

networks of people who FIFO, as results in this project demonstrated that sense of community, FIFO on-site lifestyle satisfaction, and social support were important for providing ongoing support for wellbeing for people who FIFO.

Alcohol use. The literature base suggests that alcohol use remains an ongoing issue in the FIFO population (Carrington et al., 2010; Tynan et al., 2017). My findings are consistent with this. Extending on this, the culture of alcohol use identified in this study suggests links between a lack of structure and purpose while at home, as well as alcohol as a social bonding tool on-site. However, this project's findings provide no evidence that the use of alcohol and instances of alcohol fuelled violence and crime dominates the workforce (Carrington et al., 2011; Ennis & Finlayson, 2015). Future research directions should explore the relationship between alcohol use in a FIFO population and engagement with meaningful activities at home and on-site, and purpose in life, to test the qualitative findings identified here using a quantitative approach.

FIFO lifestyle factors and work conditions. Findings from this project are consistent with other study findings that conditions of FIFO work such as roster, shift length, camp environment, accommodation, and communication facilities are necessary for wellbeing while working FIFO (Peetz & Murray, 2011; Perring et al., 2014; Sibbel et al., 2016). My findings build upon this knowledge by highlighting that rigorous preparation for people commencing FIFO must include the importance of continued connection, to foster community in FIFO accommodation villages, and consider work conditions that allow for adequate rest and socialisation. Based on the findings of this study I propose a shift in focus from the individual being responsible for their own wellbeing, to consideration of wider contextual factors and entities that are required for providing an environment which supports wellbeing and encourages thriving. Neoliberal responsabilisation messaging (for example, Chamber of Minerals and Energy, 2012) has potentially shaped the efforts of organisations surrounding mental health, and therefore future research should take into account organisational factors, policy factors, work conditions, environmental conditions, and work culture when predicting mental health outcomes for people who FIFO.

Financial matters. Previous research has identified financial matters to be a substantial issue for people living FIFO, with links to wellbeing (Palmer, 2014; Pini et al., 2012). As with other studies (for example, Parker et al., 2018), the complex nature of money was identified in this project, noting the high wage earned when undertaking FIFO work can be advantageous and beneficial, and at other times can contribute to becoming trapped in FIFO. The findings in this project extend on this understanding to identify the need for financial planning in pre-commencement training, developing clear goals and a plan to exit FIFO, as a standard practice across the industry. In addition, the qualitative findings highlighted the

importance of channelling the financial gain from work FIFO into meaningful activities and goals, which support wellbeing. Future research directions could focus on the effectiveness of financial planning and goal setting for the FIFO population, and the relationship of this with wellbeing.

Masculinity and safety. Evidence linking masculinity and safety culture has gained traction in the last decade (Laplonge, 2011). The findings of the current research are consistent with other studies identifying that the prevalence and impact of hyper-masculine norms are damaging, promote risk taking behaviour, and increase stigma for mental health (Albury & Laplonge, 2012; Laplonge & Albury, 2013; Seidler et al., 2016; Stergiou-Kita et al., 2015). Empirically, this study extends on this area by highlighting the problematic hyper-masculine work culture as a key predictor of the challenges people who FIFO experience, both including and moving beyond safety as the focus. As such, this study extends the current knowledge for safety and masculinity (for example, Ely & Meyerson, 2010; Laplonge & Albury, 2013) for the Australian mining context by posing that Australian mining is steeped in a unique hyper-masculine culture, and poses the transformation of this culture through promotion of sense of community, a learning approach to work, targeting conceptualisations of competence, and shifting values to prioritise people before production. Future research could focus on evaluating the interventions that are informed by the recommendations here to transform the hyper-masculine work culture.

Women's experiences. This project is consistent with other research in finding women's experiences of working FIFO in the mining industry are different to the experiences reported by men, and include additional stressors associated with the hyper-masculine work culture (Lahiri-Dutt, 2015; Laplonge, 2016; Mayes & Pini, 2010; Pirotta, 2009; Sharma, 2010). My findings identify that women's experiences are impacted by the intensive hyper-masculinity present in the work culture on mine sites, and links this to women's experiences of being outnumbered, gendered discrimination and harassment, and needing to constantly prove competence and ability. Women's right to be on a mine site is not an issue of the past, but rather remains current. These experiences demonstrate a belief that women are limited, and are visitors to a man's environment, and constitute a cycle that contributes to the maintenance of the hyper-masculine mining culture. My research advances this area of knowledge by proposing to transform hyper-masculine work culture and highlights the urgency of workplace gender equity initiatives to prioritise hiring women. Future research that further advances the knowledge base of how to mitigate the impact of a hyper-masculine work culture on women's experiences would be useful. This could include investigating hiring practices, how competence is defined, and how women are valued in the workplace.

12.2.3 Applied implications

Mental health issues among people who FIFO is a continuing concern, and an evidence base to inform the direction of initiatives is urgently needed. The significance of this research is the insight it provides to inform directions and strategies that target mental health and wellbeing for people who FIFO. Based on the findings of this research, I have proposed change in the industry at both a first-order and second-order change level, and as such this research has application for work conditions as well as larger cultural change.

The current context surrounding the Australian mining industry includes a trend towards practical ways to enhance wellbeing in the workplace, and develop mentally healthy workplaces to support that wellbeing (Parker et al., 2018). The insight gained from the current findings are of particular relevance to inform workplace wellbeing strategies. As such, the findings were submitted to the Department of Mines, Industry Regulation and Safety (refer to Appendix B and Appendix C for submissions) to contribute to the development of the FIFO Code of Practice for Mentally Healthy Workplaces (Commission for Occupational Safety and Health, 2019). Further to this, I was contracted to assist with the development of supporting informational resources for the resources industry (Department of Mines Industry Regulation and Safety, 2019). As advancements are made in this area, the findings of this study have potential to inform policy advancements, for example, within the Chamber of Minerals and Energy – People and Communities division (www.cmewa.com). Future directions for application of these findings could be to review and extend on the Gender and Safety in Mining workshop planner series with input from these findings, and the delivery of these workshops for mining workforces (Department of Mines and Petroleum, 2012).

12.3 Future Directions

In addition to the future research directions described within the implications sections, futures workshops (Hicks, 2004) could be a potential resource for mining companies to use to begin the journey of reshaping FIFO. Through futures workshops, mining companies may engage in visioning of each of the recommendations proposed in this project and what it could look like for companies. The use of these workshops could help companies through this process by providing simple and clear stories about the future that are compelling and include practical ways to achieve the imagined future (Hicks, 1996). In a sense, the findings from this project pose that FIFO life can and should be reimagined, so that safety, social, and emotional needs can be met, and people who FIFO are able to thrive.

Any changes made will need to be evaluated, and further use of measures that reflect subjective wellbeing for FIFO samples is needed. The breadth of literature in this field uses

scales of psychological distress or other related constructs (e.g. burnout, suicide intent). There is a need to also include measures of positive mental health and wellbeing, life satisfaction, purpose and meaning in life, opportunity for growth and learning – in essence, measuring the predictors of wellbeing rather than measuring for the absence of mental health problems (for a review of instruments see Cooke, Melchert, & Connor, 2016). Studies that measure psychological distress or similar constructs in isolation are unable to justify claims of evidence supporting wellbeing.

12.4 Strengths and Limitations

The strengths and limitations of each of the studies comprising this project have been covered in the discussion sections of the relevant chapters. The strengths of this project as a whole include a diverse sample, the use of mixed methods research and explanatory sequential design, posing translational recommendations, and a strong theoretical base.

A diverse range of site locations and companies were included in the sample. The sample was almost equally proportioned with men and women in the survey, and was equally proportioned with men and women in the interviews. Due to these proportions, insight into the perspectives of women and their experiences was able to be accessed in depth in this project, which may have been lost in a sample that had few women.

A further strength of the project was the methodological and theoretical approach, with the use of mixed methods and explanatory sequential design with integration of findings to develop recommendations for optimising the wellbeing of people who FIFO. This positive and action-oriented approach to the project enabled the overall findings to be useful to other researchers, industry, and mental health organisations in informing and directing their efforts to cultivate change for this population. The project also included a strong theoretical base with Community Psychology, which is a new direction for research in the area of FIFO mental health.

There were also a number of limitations of this project. Firstly, the findings here are unable to establish casual relationships for the impacts of FIFO work or the informal supports on the mental health and wellbeing of people who FIFO. Although the project included a prospective element this analysis was not able to be completed as planned, however, post-hoc analysis was completed with the sample that were able to be matched. The sample included in the project were self-selected, and participants' motivations for being a part of the study may include confounding variables such as having particularly positive opinions and experiences associated with FIFO work.

Further, the sample may not be representative of the broader FIFO population in Australia, as it may not represent the substantial diversity of conditions and factors associated

with this population and work mode. For example, the project sample included a higher percentage of women than make up the FIFO workforce, and was weighted for participants who lived in Western Australia. Due to the targeted nature of the study with a distinct focus on mental health of people who FIFO in the Australian mining industry, the generalisability of the findings is limited to the mining industry in Australia.

Although unlikely to be the sole reason, there was a noted instability of findings with predictors and experiences changing as the mining economy changed. At the early stages of the study that coincided with the last few months of the most recent boom time, the influential factors were the conditions and facilities of the FIFO lifestyle and mine site. However, at Time 2 in the survey the industry was amidst a downturn, and the findings suggested a distinct shift to connection to family and social networks as being the most important. This cyclic nature of the industry means that cross sectional research may not be gaining a comprehensive understanding, however, longitudinal studies run into difficulty when the findings may be influenced by the economic climate. The importance of context and taking into consideration the cyclic nature of the industry is evidently important when conducting research concerning people who FIFO.

12.5 Concluding Comments

Embarking on this process I identified the importance of delivering research findings that had translational impact, as the need for information that could inform the direction of practice was evident. It is therefore suitably significant that a key contribution of this research is posing the 'how'. In the current mining context in Australia, there appears to be a shift away from a compliance focused reaction to issues as they arise, and a move towards proactive strategies for prevention of risk factors, and promotion of wellbeing. This makes the findings within this thesis particularly well-timed.

Although the situation for people who FIFO has resulted in ongoing reports of concerning mental health and instances of suicide, it is also clear there are a multitude of opportunities for change, and to alter the way in which FIFO work is designed and experienced which optimises wellbeing for people living this lifestyle. It is clear that as the industry continues to be cyclic in nature, there is a need for holistic support in order to adapt to the booms and downturns, as well as to increase engagement with a diverse workforce. This is supported by the research findings here, whereby in prosperous boom times working conditions and lifestyle factors were found to be the most influential for wellbeing, however in a downturn climate it was the informal supports and social connection that was identified as most important for bolstering mental health outcomes.

Targeting the transformation of the hyper-masculine work culture, as was identified in this project to be a significant issue, may have many beneficial outcomes in reduced mental health stigma, enhanced safety, and better experiences for both men and women. Through this transformation process, a learning approach to work and greater social and community connectedness can be developed. The future of Australia's economy is intertwined with the prosperity of the resources sector, and the support of the people who are fundamental to this needs to be at the centre of how to make FIFO work, work.

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Appendix A

Summary of Research Findings for Participants



Between a rock and a hard place: Optimising wellbeing for people who work fly-in fly-out in the Australian mining industry

Summary of Research Findings

Thank you for participating in my PhD project seeking to optimise wellbeing for people who FIFO. Your time in contributing to this study and sharing about your experiences with FIFO are valuable and greatly appreciated.

The aim of this research was to understand the experience of FIFO work and how social and community connections could help support the overall wellbeing of people who FIFO.

I surveyed 392 people about their experience of FIFO work and their social and community support, with a follow up survey 6 months later. I then conducted interviews with 20 people who had also participated in the survey.

The key findings identified from the research are outlined below.

Key survey findings:

- Higher levels of depression and anxiety in comparison to the general Australian population
- Lower levels of social support and overall satisfaction with life in comparison to the general Australian population
- Social and community support were predictive of better wellbeing for people who FIFO
- On site environment, social culture, and work conditions influenced wellbeing levels

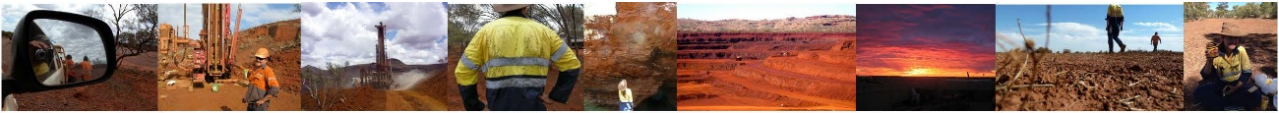
Interview findings identified some key challenges of FIFO, insights into how support is engaged with, and some strategies for managing a FIFO lifestyle.

Challenges

- *Take it or leave it:* The way FIFO roles are offered are inflexible, and people must take it as it is or not do it at all.
 - *'FIFO type':* The inflexibility of FIFO promotes the idea that only a certain type of person is suitable for FIFO work.
- *Money doesn't buy happiness:* The financial gains of working FIFO cannot replace the community and social connections missed, or become the sole purpose in a person's life.
- *Sprint and a sudden stop:* The nature of the FIFO schedule is disruptive, and increases fatigue. Difficulty in maintaining sense of purpose while at home.
- *Ultimately on your own:* Separation from friends and family, difficulty making friends on site, and the transient nature of FIFO led to a sense of being ultimately isolated.
- *Hyper-masculinity breeding silence:* The expectation to perform masculinity and appear macho discouraged open dialogue about hardships or mental health struggles.
- *No way out:* A sense of entrapment in FIFO, and there being no way to improve the circumstances or have the choice to leave.
- *It's a man's world after all:* Women's experiences while working FIFO continue to be impacted by a culture of discrimination and harassment. Women felt a sense of being outnumbered and observed while on site.

Engaging with support

- *It's useful but I don't use it:* Recognition of formal support services such as Employee Assistance Programs, support phone lines, and support groups as useful and necessary for other people, but rejecting the need for supports for themselves. This perpetuates the construction of support being relevant only for those who are not tough enough to handle FIFO work, and so there is a desire to distance oneself from using them.
- *The support 'fit':* Despite stigma for seeking support, there was recognition of the need for support services and health professionals that were relevant for the issue. Preference to engage with support within the community or friends, family, and partner. Support services that were flexible and holistic were desired above utilising a range of separate services.



Strategies

- *Enter with an exit plan:* Conceptualising FIFO work as temporary, including starting the work with a plan of when and how to leave, transitioning to local work.
- *A sustainable roster:* Standardised limitations placed on rosters and shifts, to enable a more balanced lifestyle with adequate time to connect with community and social networks, and to rest.
- *Continued connection:* Appropriate communication facilities available to maintain connection with social network while on site. Understanding the importance and strategies of maintaining social connections across locations.
- *Something to come home to:* Maintaining a sense of meaning and productivity in time spent at home. Engaging with purposeful activities that provide structure and fulfillment.
- *Be a facilitator:* An individual strategy posed as an approach to FIFO work that assists with managing the diverse demands of the lifestyle. Maintaining autonomy and choice was posed to assist with lessening the likelihood of becoming trapped in FIFO work.
- *Cultivating a productive community:* An organisational level strategy to guide employers in promoting a work environment and culture that enabled on site socialising, leisure areas to relax, and embedding a sense of humanity and kindness in the interactions and decision making processes of the company. In turn, the benefits gained by workers can enhance wellbeing and morale, and therefore support productivity.

The findings from the survey and themes from the interviews were considered together to inform a set of recommendations for how to optimise wellbeing while living FIFO. These recommendations were proposed at two levels of change, known as Developmental and Transformational change. Developmental change strategies are aimed at developing smaller and specific parts of the existing system in order to attend to identified issues, such as the work conditions of FIFO. Transformational recommendations are focused on broader, holistic change of the system itself, such as culture, policy and legislation, and values.

Developmental - First order change

- Recommendation One: Cultivate connections in the home community
- Recommendation Two: Develop standardised limits on roster and shift length
- Recommendation Three: Develop opportunities to socialise and connect while on site
- Recommendation Four: Facilitate preparation for living FIFO
- Recommendation Five: Hire more women
- Recommendation Six: Provide ongoing employer support of employee health and wellbeing

Transformational – Second order change

- Recommendation Seven: Transform the hyper-masculine work culture
- Recommendation Eight: Cultivate holistic sense of community

The findings of this research have been submitted to the Department of Mines, Industry Regulation and Safety and has contributed to the development of the Code of Practice for FIFO Mental Health, as well as to the development of a mental health resource and guide for people working in the resources sector.

If you would like to provide feedback on the findings, please reply by email by the 8th February 2019.

Warm regards,
Jess Gilbert

Appendix B

Submission One to Department of Mines, Industry Regulation and Safety Public Comment for the FIFO Code of Practice



Response to the Draft Code of Practice for FIFO Mental Health

I write in response to the call for public comment on the draft code of practice for FIFO mental health. As a Curtin University PhD candidate researching mental health for people who FIFO, I welcome the introduction of this code and the important changes that it could promote. The primary focus of my research during the past four years has been understanding the support needs of the FIFO mining workforce, particularly concerning informal support systems of social and community networks. As part of my response, I have attached a research poster from a recent conference that includes a brief overview of my research findings (Gilbert, Roberts, & Dzidic, 2018).

The strength of this code is the use of the risk management framework, offering structure and clear areas of focus. In particular, a key strength is highlighting the importance of communication and ongoing consultation while using this framework. This demonstrates the code's potential to be a utilised and applicable document. In addition, this demonstrates the authors' commitment to this process as evidenced by consulting the public for comment on the code. The continued recognition of poor mental health and incidences of suicide for people living FIFO is concerning, and working towards supporting mental health and developing sustainable practices is a primary need to address.

My response outlines three concerns, with further detail provided below:

1. **Significance of this Code of Practice:** The significance of this code of practice is due to recognised issues concerning poor mental health and incidences of suicide. This information is missing in the code. Information regarding mental health and instances of suicide in this industry is not identified as a risk. These issues are of core importance, and are a key factor in why this code of practice is important, and therefore are paramount to include.
2. **Understanding FIFO as a Lifestyle:** The code focuses on work factors in isolation. The challenges of FIFO are unique in that challenges transcend work as well as workplace, which highlights the importance of multi-dimensional support and a need to integrate this understanding of FIFO as a lifestyle in a FIFO specific code of practice.
3. **Protective Factors as Part of Prevention:** Prevention is identified in the risk management framework as being the most effective, however, detail concerning what protective factors are important in prevention, as well as specific preventative strategies that need to be employed, are missing from this code. The concern here is that the current is a reactive approach by focusing on issues as they occur, rather than proactive by strengthening protective factors to reduce issues occurring. There is a need to include protective factors to a greater degree.

Significance of this Code of Practice

The code identifies stress as the key psychosocial risk for people working FIFO, with depression and anxiety mentioned briefly. Further information is needed in this code regarding mental health and the incidences of suicide as ongoing issues in this workforce; issues recognised in the recent government inquiries (Education and Health Standing Committee, 2015; Infrastructure Planning and Natural Resources Committee, 2015), as well as ongoing anecdotal reports in the media (Barry, 2017). This code does identify workplace culture as an area of importance in promoting wellbeing, but does not identify characteristics of the current culture as potential risks. Further information regarding what is currently known regarding FIFO mental health, incidences of suicide, and culture that stigmatises mental health, need to be included in order to effectively communicate the importance of this code of practice.

People who FIFO have been found to have higher reported rates of mental health concerns than the general population across research studies (Considine et al., 2017; Tynan et al., 2016; Vojnovic & Bahn, 2015). This was consistent with my own study, where people who FIFO were found to have higher levels of depression, anxiety, and stress as compared to general Australian population studies, and lower levels of perceived social support, lower sense of community, and lower satisfaction with life. Evidence of struggles with mental health and suicide were also strong themes in the qualitative component of my PhD study. For example, participants described struggling with depression, but being unable to speak openly about it:

"I struggled in silence like, when I was doing it I was really unhappy and I was... I struggled quite badly from it. I cried in my room a number of times. Um, Yeah I really sort of struggled really badly with it. But, it took me a while to get out."

The cumulative pressures of the work coupled with decreased connection to support and social networks, as well as a culture that stigmatises mental health, can prolong and exacerbate the experience of these issues. In addition to personal experiences, participants also directly described their experience in relation to suicide in mining:

"If you're there longer than maybe three years, you'll know of someone who's committed suicide. I've worked with people who have committed suicide over the years."

"It's also a closed group and people tend to kill themselves on site because it's away from their family. It's where they're the saddest, it's also where their families are least exposed, I think it's because their family is least exposed to the pain, so they can kill themselves there."

Clearly identifying mental health issues as primary factors this code seeks to address can ensure the importance and urgency of utilising this code is understood by mining companies and employees.

Understanding FIFO as a Lifestyle

In the code the parameters of the risk management framework are posed as being focused on work related factors in isolation. Greater understanding of the interconnected and cumulative factors that are unique to FIFO is needed. FIFO challenges transcend workplace; the interaction of home and work needs to be considered as they are not mutually exclusive. This understanding can enable the kinds of strategies posed to address FIFO risk factors to be contextually relevant. As is described in the attached research poster, participants in my research described four key factors that are needed to make FIFO work, work; a sustainable roster, healthy site culture, continued connection, and something to come home to (Gilbert et al., 2018). These factors also represent the need for supporting the connection between home and site. Participants spoke of FIFO as a lifestyle, acknowledging that support needs to be drawn from all possible sources in order to cope:

"They've got to have things on site and back in Perth to support people that are having issues. The family issue is obviously the biggest one, because you need your family's support, friends, partner, no matter what. It is such a tough lifestyle, I find. If you haven't got that support from the company, your partner and your family, I think it's really difficult."

Broadening the scope of the risk management framework will assist this code to be contextually appropriate for use with a FIFO population.

Protective factors as part of Prevention

Further inclusion of protective factors as part of prevention is needed in this code. As outlined in my research poster (Gilbert et al., 2018), social and community supports, as well as particular FIFO lifestyle related factors, were strongly associated with overall wellbeing. This finding demonstrates the utility of social and community supports to integrate with FIFO lifestyle factors in order to promote wellbeing for people who FIFO.

This further illustrates that offering formal programs and formal support services cannot remain the sole management approach for addressing risk factors. There is need to strengthen the preventative component of the framework in this code, by including strategies to boost protective factors such as connection to social and community networks, which are known to buffer stress and enable coping, and support overall wellbeing (Chen, Siu, Lu, Cooper, & Phillips, 2009; Handley et al., 2012; Kutek, Turnbull, & Fairweather-Schmidt, 2011). Resources to facilitate these connections include the use of sustainable rosters, healthy site culture (combatting hyper-masculinity and destigmatising mental health concerns), facilities to promote continued connection to social and community networks, and the promotion of continued purpose when employees are not on site (Gilbert et al., 2018). As prevention is identified to be the most effective form of risk management in this framework, including guidance and strategies to increase protective factors will enable this code to be proactive in response to the identified challenges of FIFO, rather than reactive to situations as they may continue to occur.

I appreciate the opportunity to contribute to the ongoing discussion as a researcher and advocate of mental health for people who FIFO.

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Appendix C

Submission Two to Department of Mines, Industry Regulation and Safety Public Comment for the FIFO Code of Practice



Response to the Draft Code of Practice for FIFO Mental Health – Second Consultation

Thank you for the opportunity to provide further comment on the draft code of practice for FIFO mental health. As a Curtin University PhD candidate researching mental health for people who FIFO, I welcome the development of this code and the important changes that it could promote. The primary focus of my research during the past four years has been understanding the support needs of the FIFO mining workforce, particularly concerning informal support systems of social and community networks.

I would like to again highlight the importance of this code, and the significant need for this framework to be implemented. The context for people living FIFO is challenging, and there is an urgency for changes to the way FIFO is offered and operated. New research (Franklin et al., 2018) has highlighted that a very large proportion of the general Australian population experiences loneliness. As loneliness has been found to be a direct predictor of suicide, this is concerning in and of itself. The most at-risk group for loneliness was identified as Australian men, and the most at risk group for potential suicide was Australian men age 25-44 years. This raises significant concerns given the demographic of FIFO employees, whereby a population who is already at risk of loneliness in the general population is being placed in a context which has been shown to exacerbate this further (Bowers et al., 2018). It is therefore immensely important that the wellbeing and social connectedness of people who FIFO is considered and supported.

My comment in response to this second consultation will be in two parts. Firstly, I will briefly comment on the commendable developments in this revised code. Secondly, I would like to comment on the process of supporting the implementation of the code for companies that utilise FIFO arrangements.

Feedback on changes

I welcome the significant developments in relation utilising the risk identification framework, including further information regarding approaching risk management, and illustrating the ongoing and iterative process of risk management through a circular framework presentation. The inclusion of reference materials on a range of important areas in the appendices is an excellent and useful addition. In addition to the current resources, I would recommend including community engagement resources. Community connection is recognised as a protective factor that decreases loneliness and increases perceived social support for people who FIFO (Considine et al., 2017; McTernan et al., 2016). The inclusion of these resources would help companies facilitate community engagement as part of their risk prevention strategies. I am able to provide recommendations of community engagement resources if this was to be included.

Implementing the code

The introduction of this Code of Practice is an excellent first step. As this code acts as a resource for companies to assess risk and build their own specific practices and policies, I would recommend that an ongoing central body be established and associated with this code. This body would be available to continue consultation and provide practical advice to companies in implementing this code. Risk assessment, policy creation, and transforming work culture is a specific area of expertise which may or may not be available within current company roles. Having a central body to offer consultation may also assist in consistency across the industry in the ways and extent to which this code is implemented.

I appreciate the opportunity to contribute to the ongoing discussion as a researcher and advocate of mental health for people who FIFO.

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