Original Article

Mental health and well-being in resident mine workers: Out of the fly-in fly-out box

Kristy N. Mclean, PhD

Institute of Health and Biomedical Innovation (IHBI), School of Public Health, Queensland University of Technology, Kelvin Grove, Queensland, Australia

Abstract

Objective: To explore psychosocial issues perceived to impact the mental health and well-being of resident (non-fly-in fly-out) mine workers at a local mine in regional Queensland.
Design: A descriptive qualitative study using semistructured interviews.
Setting: The research was conducted on-site at an open-cut coal mine in regional Queensland.
Participants: Ten miners (nine men) currently employed in workshop, production or supervisory roles.
Main outcome measures: Self-reported issues affecting psychological well-being.
Results: Participants' occupation and the surrounding context appeared to have both positive and negative influences on their well-being. Overall findings could be grouped into four key themes: (i) the importance of relationships; (ii) the impact of lifestyle; (iii) work characteristics; and (iv) mental health attitudes. While not without strains on mental health, in general, participants reported that their current situation was superior to their previous mining jobs. This was attributed to close relationships among locally recruited workers, respect for management practices and rosters that allowed adequate sleep recovery and family time between shifts.
Conclusions: This study is the first to examine mental health and well-being in non-fly-in fly-out mining populations. It suggests that while some issues appear inherent in the mining occupation, personal and organisational support can help workers have a more positive workplace experience. Further work looking at more extensive comparisons over various mining contexts will greatly assist in the development of programs and support structures for rural and regional mine workers.

Correspondence: Dr Kristy McLean, Institute of Health and Biomedical Innovation (IHBI), School of Public Health, Queensland University of Technology, 60 Musk Avenue, Kelvin Grove, Queensland, 4059, Australia. Email: kristy.mclean@qut.edu.au

Mental health and well-being in the mining industry

In regional and remote Australia, a growing source of employment is mining. Often organised on fly-in fly-out (FIFO) basis, the mental health concerns of this specific occupation are increasingly attracting attention.

With mental health problems (such as depression) being a leading cause of non-permanent disability worldwide,[1,2] the promotion of positive mental health and psychological well-being in the workplace is now recognised as a global research priority.[3] In rural contexts, research suggests that mental health is an issue for the whole community, and key people should encourage whole communities to get involved to overcome the isolation.[4] However, mental health is often stigmatised in rural communities that instead foster an attitude of self-reliance and promote a reluctance to seek help, combined with fewer opportunities to access preventive health care and public health education.[5]

While the importance of mental health in the workplace is gaining recognition, there is very limited research information concerning mental health issues in key industries such as mining. This industry presents some unique issues, including the increasing work pressures associated with productivity demands and working in remote locations often living away from families and access to support services. Organisational characteristics, such as extended rosters, FIFO arrangements, and living on camp have been linked with social isolation,[6] stress[7] and poor help-seeking behaviours.[8]

Overall however, research examining the mining workforce has focused on issues in FIFO contexts. To date, it appears no work has examined resident community mine sites, where workers live at home and commute small distances, to see if these same issues are prevalent. Such a comparison can help discern what factors are most detrimental to the mental health of workers and what, if any, provide support for stressors, thus contributing to a more positive experience. Therefore, the aim of

What is already known on this subject:
- *Previous research has indicated that mining has both positive and negative impact on workers' mental health and well-being. Particular attention has been paid to the negative effects of fly-in fly-out (FIFO) situations.*
- *Despite the growth of this particular working population in Australia, and the often challenging environments and situational contexts in which they operate, research in the area remains limited.*
- *To date, research is yet to focus on resident (non-FIFO) contexts in order to determine what similarities and differences exist and whether this living style is more beneficial to mental health and well-being.*

What this study add:
- *Local mine staff identified positive and negative impacts on their psychosocial well-being in terms of four key areas – relationships, lifestyle, work characteristics and mental health attitudes.*
- *Key to well-being among participants was the support provided by close working relationships with local peers and management as well as the support offered through organisational structure.*
- *Further research looking more explicitly at comparing contexts and identifying factors that seem to promote well-being is needed to help aid in the design of policy and interventions aimed at enhancing the well-being of this economically vital workforce.*

this study was to explore the mental health issues relevant to resident mine workers to determine, independent of FIFO, which factors were most prevalent.

Method

Participants

Ten mine workers (nine men) with an average age of 43.6 years participated in the study. Participants lived in the surrounding towns and commuted an average of 45 km to work. A summary of participant characteristics is presented in Table 1.

Procedure & analysis

This study was approved by the Queensland University of Technology Human Research Ethics Committee. Informed written or verbal consent was obtained from all participants. Semistructured interviews lasting 20–55 min were conducted with workers on-site at a regional Queensland open-cut mine. A list of open-ended questions intended to cover a variety of aspects of work and wellness guided the interview. With permission from the participants, the interviews were digitally recorded and transcribed by the author. Thematic content analysis was conducted to identify key issues.[9] The author examined each transcript and identified meaning units, which were text segments that represented an idea or a piece of information. These meaning units were then grouped together according to common themes to create categories, which reflected the emerging concept (e.g. coping with stress). A second researcher independently coded data to ensure themes

were consistent. Content analysis produced first-, second-, third- and fourth-order categories, each representing the emergence of a more general theme.

Results and discussion

From the data, a total of 183 meaning units were identified and, from these, content analysis produced 46 categories and four general dimensions. These were classified as: (i) relationships; (ii) lifestyle; (iii) work characteristics; and (iv) mental health attitudes.

Relationships

The importance of relationships both within and outside of work was a clear theme to emerge from the data. Workers' comments regarding relationships at work centred on feelings of camaraderie, group dynamics on-site and the closeness of the group. For example,

> Yeah its more family I suppose is the best way to put it – you get to know what they're like whereas you have 30 blokes, you get to know them all by name but you don't really get to know them. (P3)

While many participants discussed a general preference for their own company, outside of work, participants were grateful to have adequate time to spend with their family/friends compared with previous jobs. As stated by P3,

> . . . it's been great since I've been here cos I've seen [my youngest] from day one the whole way through – what I've seen with her I've missed out on all the others so it's been really good.

TABLE 1: *Summary of participant characteristics*

Number	Job	Gender	Age	Years in mining
1	Workshop	M	57	4
2	Workshop supervisor	M	28	8
3	Workshop – fitter	M	33	2.5
4	Production supervisor	M	59	30+
5	Production – casual operator	F	52	4
6	Production – operator	M	49	3.5
7	Production – operator	M	26	7
8	Production – casual operator	M	52	4–4.5
9	Production supervisor	M	40	21
10	Production – operator	M	40	11 months

This cross-section was fairly representative of site demographics which, in 2011, had an average age of 39.7 years (standard deviation (SD) = 10.88 years), average years in mining 7.97 years (SD = 8.39 years), and included 2% female workers.

Time with family and friends is often commented to suffer in FIFO contexts.[6,10,11] Being able to return home after each shift, however, was of enormous value to workers, and this was reflected in their statements.

Lifestyle

A dominant theme to emerge from the data was lifestyle, which encompassed the locality of the mine, the roster and the remuneration offered. A particular advantage was the smaller size of this operation which was staffed predominantly by locals. In turn, this led to a strong sense of community feeling on-site. As stated by P4,

> . . . that's probably why we don't sort of have any major injuries or accidents on site. It's because you know people do know each other and I think they probably tend to look after each other a lot better.

In addition, the organisation of roster schedules allowed participants to spend more time with friends and family than they had experienced in previous jobs. Furthermore, the hours involved in shift schedules meant that, unusually, night shift finished before day break, and all participants commented that this system contributed to noticeably better sleep. Overall, the general feeling expressed was that this site was better for all areas of lifestyle than any previous positions. For example,

> . . . in my previous job I was usually only home one day a week – I was gone 6 days so I was never home and yeah but now that I'm home I love the roster that I've got. (P3)

Lifestyle also encompassed the remuneration offered in mining. Unsurprisingly, for many participants, their main motivation for working was the money. Moreover, as expressed by P7,

You've got to appreciate the money they give you in mining. And when you've been mining for a while you tend to have a miners budget so then you've got to go to work.

Generous remuneration in mining is often reported as a key incentive for workers,[7] however, being completely driven by extrinsic means such as this can decrease workers' motivation and performance as well as increase burnout and attrition with long-term implications for well-being.[12]

Work characteristics

Both positive and negative aspects of the job itself, the influence of management and the need to keep mentally stimulated were discussed by all participants. Positive aspects included general job satisfaction, an appreciation for the responsibility involved and enjoyment of work. In contrast, the negative aspects of work identified were the effects of shift work, stressful tasks required and, in some cases, a general feeling of burnout. For example, as stated by P7, '*It's [shift work] bad, like it messes with your body clock, your metabolism, your digestive system . . . it's just not right*'.

In general, management on this site was discussed in positive terms.

> . . . they seem to be there in your meetings of a morning and they hear what's being said and there's plenty of opportunities if you have a problem, which is a good thing. (P5)

However, older workers felt that praise was given too freely from management, and they felt it was hollow. In contrast, one younger worker liked the recognition offered as this was something he had not experienced at

other mine sites. The overall positive view of management can act as a buffer for the development of mental health issues as leadership qualities (such as support and organisation) have been found to relate to better outcomes for workers with depressive characteristics.[13]

Finally, all truck drivers mentioned the need to keep their brain busy when operating as it could make you 'brain dead', particularly in situations where workers were motivated solely by the pay cheque.

> It does seem to be a very transient occupation – you know and to be fair, you go up the one ramp 4 years, it can be boring. (P8)

Mental health attitudes

Discussions about mental health centred on personal experiences, issues of acceptance and coping with stress. Personal experiences related to both encounters with people on-site and experiences with family and friends. One participant in particular mentioned that he felt depression was more common in mining, especially in FIFO contexts where workers' relationships were strained by distance,

> Like having friends and family that are fly-in fly-out they're gone for quite a long time and if it wasn't for internet and phone and that, they wouldn't last with their partners so it's definitely more frequent in mining I think. (P7).

However it was clear that the occupation itself, independent of FIFO, could be draining.

> I've been doing this s*** for 20 years and I've had enough, I'm looking to get out. So I've gotta drag meself out of bed (P9).

For the most part, workers identified sources of stress in their life and could discuss their mechanisms of coping. For example, P9 stated, '*I usually go shooting . . . You forget about work, you forget about home, you're out there just trying to shoot Roos.*' Positive coping mechanism mirrored those described by Staniford *et al.*[14] in citrus farmers, suggesting similarities among regional Australian men. This is particularly important as coping with work stress and managing depressive symptoms are crucial factors in enhancing mental health in the workplace, which, in turn, can boost performance and even profits in organisations.[15]

In terms of acceptance, themes in this area varied among the group. It was widely commented that perceptions have changed over time largely due to the expanding media profile and personal experiences with issues such as depression.

> . . . I think it would be different to what it was 5, 10 years ago – they might have been looked down on as a sook or looking for the easy way out. I think times have changed. (P1)

On-site, most said they would happily discuss issues with peers, however, they felt that most people would be hesitant to share. Despite this, most commented that while their workmates might wish to keep their issues private, the closeness of the working group meant that it was likely that you would notice changes in their behaviour,

> I'd say I don't know if anyone would ever feel comfortable with it . . . I mean the thing we do have in our favour is that we are a close workshop and everyone knows each other fairly well and you would pick up on it pretty quick. (P2)

Thus, while not everyone was comfortable with the idea of their colleagues dealing with depression, the close relationships on-site meant that people were happy to support each other. As stated by P3, '*Sometimes you don't even have to get them to talk and they'll start talking it's just another set of ears . . .*' This is similar to the findings of Torkington and colleagues,[10] who, in a long-distance commuting sample, found that workers had a preference for seeking support from trusted workmates rather than formal support.

Conclusion

While there was still significant mental health concerns identified, this particular site seemed to promote greater well-being among its workers. Overall, those miners who subjectively rated their happiness and mental well-being more highly expressed more satisfaction with indicators of well-being. In particular, their positive relations with others and the organisational structure (e.g. rosters) were important for promoting well-being on this site.[16]

Specifically, workplace culture was aided by the closeness between colleagues built on local connections and friendship along with a management group who were respected. In addition, the adoption of a rostering policy which allowed adequate sleep on night duty and time with family and friends was of benefit. Finally, trust between colleagues and the belief that supervisors were willing to be supportive and accommodating of issues were key to views of mental health on this site.

This study had several strengths and weaknesses. Foremost, the integrity of the data was aided by the independence of the interviewer. Moreover, interviews were conducted on-site, often in the participants' vehicle or operation space, encouraging company compliance and provision of access. However, whilst this setting

might have made work issues more salient, it is possible that workers felt more or less comfortable engaging in discussions about mental health at work. In addition, the small sample size and qualitative method limit the generalisability of findings beyond the mining community involved in the present study. Nonetheless, important similarities and differences with previous psychosocial mining research make it a worthwhile addition to the research knowledge in this area.

It must be stressed that all participants qualified that their mine site was not typical and they felt things were a lot better there than at other places they had experienced. However, it is precisely this difference that makes the information valuable. Organisational support structures are vital to supporting the mental health and well-being of the workforce. As more mine operations move to FIFO populations, these findings challenge the viability of that decision. Moreover, organisations need to look beyond short-term extrinsic incentives (such as salary) which have been shown in other settings to deplete worker motivation, effort and performance.[17] Further evidence for specific structures that promote worker well-being is necessary. In turn, a happier and mentally well site will benefit workplace performance, retention and reputation.

In summary, this study suggests that while some mental health issues appear inherent to the mining profession; family contact, co-workers, management and organisational support can positively impact workplace experiences and well-being. Further research looking more explicitly at comparing contexts and identifying factors that seem to promote well-being is needed to help aid in the design of policy and interventions aimed at enhancing the well-being of this economically vital workforce.

Acknowledgements

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