


The Overall Health of Men Who Do Fly-in Fly-Out Work in the Mining Sector

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Abstract

Fly-in fly-out (FIFO) continues to be a fact of life for many men working in the mining industry. The goal of this article is to gain a better understanding of the impacts of FIFO on the overall health of men working in the mining sector and the relationship these men have to seeking help. A qualitative study of 22 men was conducted using a semi-structured interview guide modeled after Torkington et al. Results indicate that men present poor health as a result of workplace-specific performance requirements (long workdays, difficult environmental conditions), being physically far away from their family, and the fact that they do not often seek mental health help. Additional studies with a much larger sample of men are necessary.

Keywords

men, fly-in fly-out, mental health, physical health, mines, West Quebec

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Introduction

In Abitibi-Témiscamingue (western Quebec, Canada), one of every three men (35%) claims to suffer from increased daily stress in the context of their work, which represents close to 16,000 workers in the region (Beaulé, 2010a). This proportion is comparable to that of the rest of Quebec, which is around 36% (Beaulé, 2010b). This assumption remains debatable, as men place more importance on physical health and performance than on psychological well-being due to the stigma surrounding mental health, which still proves to be very much present in society, and specifically, in the mining sector (Beauchemin, 2020; Bizot et al., 2013; Gardner et al., 2018). As a result, fly-in fly-out (FIFO) workers are less inclined to admit to mental health issues and are more likely to put up with suffering related to anxiety (Joyce et al., 2013).

Other studies indicate that in the mining sector, the mental health of FIFO workers is good compared to that of people working in other types of jobs (Barclay et al., 2016; Barclay et al., 2013; Joyce et al., 2013; McPhedran & De Leo, 2014; Sibbel, 2010), whereas other studies tend to indicate a link between FIFO, psychological distress, and suicide (Albrecht & Anglim, 2017; ; Bower

et al., 2018; Dorow et al., 2021; Miller et al., 2019; Pelletier et al., 2018). On one hand, some studies point out that FIFO workers report less common mental health issues (e.g., adjustment disorder, depression, or anxiety disorder) compared to people working in other types of jobs (Barclay et al., 2016; Joyce et al., 2013). The study by Barclay et al. (2016) suggests that FIFO workers assess their mental health more positively than the rest of the general population. Moreover, a group of experts studied the connection between FIFO and suicide, concluding that the scientific data remain inadequate and

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inconclusive given the lack of knowledge on this topic (INSPQ, 2018).

The fact that some FIFO workers are skeptical that employers will give workers' mental health problems the attention it requires represents an additional limitation that needs to be considered when looking at workers' disclosures regarding their state of mental health (Gardner et al., 2018). Similarly, several workers indicated their concern that their psychological state might be divulged to their employer and feared that this could jeopardize their employment record (Gardner et al., 2018; Nielsen et al., 2013). According to these authors, workers' fear of judgment, or even of losing their job for reasons connected to mental health issues remains a preoccupation that is very much present in the mining sector. However, despite the heavy workload, emotional demands, and the stigma around mental health that continue to be identified as stressors in the mining context, the lack of privacy in shared and temporary accommodations and the pressures of conforming socially also represent stressors specific to FIFO work (Barclay et al., 2016; Ebert & Strehlow, 2017; Pini et al., 2012; Riethmeister et al., 2015).

But the truth is that FIFO workers are mostly between the ages of 15 and 44 and are, by this very fact, considered a population group that is vulnerable to psychological distress and suicide (Gilbert, 2019; INSPQ, 2018; Tang et al., 2014). This group remains susceptible to certain risk factors that can lead to suicide, such as relationship breakups caused by the extended absences inherent to the nature of FIFO work (INSPQ, 2018). Several authors are of the opinion that marital separation represents a catalyst for men to attempt suicide (Dufault-Genest, 2013; Léveillé, 2015).

According to Lavallée (2017), the state of men's physical health is generally more detrimental than risk factors that impact them more, such as shorter life expectancy, poor lifestyle habits connected to dependencies (alcohol, cigarettes, and drugs), weight gain, and more prevalent physical health issues, in particular related to diabetes, high blood pressure, and other issues, a suicide rate that is three times higher, poverty, homelessness, and crime, and so on.

Men who do FIFO work admit to consuming alcohol and drugs to help them sleep and better manage their anxiety (Henry et al., 2013; James et al., 2018; Joyce et al., 2013; Weeramanthri & Jancey, 2013). FIFO workers also reported that they increasingly turn to medication to treat physical illnesses (Rebar et al., 2018). It was observed that many FIFO workers engaged in less physical exercise as their shift schedules (14/14, 21/7, etc.) did not allow them to commit to long-term athletic activities with friends (Torkington et al., 2011). Some workers found the 12-hr

rotating shifts (12 hr on, 12 hr off) over an extended period with no rest days extremely challenging (Carter, 2008; Guerin et al., 2009). Presumably, after 8, 9, or 10 hr of consecutive work, workers feel more tired and are more irritable, which has both a negative impact on work performance and on family dynamics (Beauchemin, 2020; Gardner et al., 2018; Ostigny et al., 2017). In this context, the objective of this study is to gain a better understanding of the impacts of FIFO work on the overall health of men in the mining sector and how it affects their relationship regarding seeking help. More specifically, this study has two objectives: (1) to describe the implications of FIFO work on men's overall health (mental and physical) and (2) report on the dynamics of men's requests for help in the context of men in the mining environment.

Conceptual Framework

This study is based on Raewyn Connell's (2015) theory of hegemonic masculinity, which allows us to better understand and explain the nature of masculine behavior in the mining environment. For these authors, hegemonic masculinity conjures up images of a man who is violent, unyielding, dominant, sexist, and macho, in addition to exhibiting behavior asserting his role as family provider, the need to maintain a satisfying sex life with his partner, or even fully asserting his role as a father. According to Connell and Messerschmidt (2015), the practical relationship that men adopt with respect to idealized masculine models makes it possible to understand gender-based consequences on the mental and physical state of men who do FIFO work. In summary, men can navigate among several meanings of masculinity based on their needs and their interactions with their social environment. For these authors, men's actions within, among others, a work team, can be rational or they can be the opposite, that is, not thought out, or even routine. In addition, possible contradictions between their actions contribute toward the creation of hegemonic masculinity that continues to change over time. This research aims to shed light on mining realities in which valued behavioral models operate in a continuum among men who do FIFO work (Connell & Messerschmidt, 2015).

Method

In this section, we will discuss the methodology adopted in this research to achieve the objectives. The qualitative approach was chosen to better understand the realities of men's FIFO in Abitibi-Témiscamingue. The recruitment of participants as well as ethical considerations will be discussed.

Participant Recruitment

First, an invitation letter regarding the dissemination of the study was e-mailed to mining operations in the region, either to a union member (for unionized facilities) and to an executive management member or to human resources (for non-unionized facilities). Next, the people in question were called on the phone. Although these initiatives did not lead to a collaboration allowing us to disseminate the study within mining operations, we were able to promote the research team's project on Facebook. We thus turned to snowball sampling in the interest of better contacting the male population. For the interviews, we planned for over-the-phone meetings with the men interested in participating in the study, and these participants were asked to read and sign the written consent form.

The semi-structured interview guide was inspired by the study by Torkington et al. (2011) as well as other scientific studies from the literature review.

For this study, we analyzed thematic content. This is based on five stages: (1) becoming familiar with the data collection, (2) generating initial codes or transforming raw data into central codes, (3) researching topics or categorizing elements that have already been coded, (4) revising topics by connecting them to identified categories, and (5) defining and designating study topics making it possible to integrate an analysis framework (Labra et al., 2020).

Ethical Considerations

A request for an ethical evaluation was submitted to the Université du Québec en Abitibi-Témiscamingue (UQAT) research ethics committee. This ethics certification was granted by the committee on February 12, 2021 (2021-01_Labra, O.)

The transcriptions of interviews, written consent forms, spec sheets, as well as note-taking guides were stored on UQAT's servers. The consent form was given to men (electronic version) prior to the interview who had contacted the research assistant. For men who were unable to send signed consent via email, they were asked for verbal consent prior to the interview. Thus, the consent form was read aloud at the beginning of the recording (on the zoom platform). All verbal consents will be accessible for at least 7 years in a locked file cabinet in the office of the study project director. No financial compensation was offered during this study. Participation was free and voluntary.

Sociodemographic Characteristics of Participants

The participant population consisted of 22 men. They were between the ages of 18 and 54 ($n=20/20.90\%$ out of

$22/100\%$), either in a relationship or married ($n = 15/68.1\%$ out of $22/100\%$) with at least one dependent child ($n = 15/68.1\%$ out of $22/100\%$). The respondents' education level was mostly at the professional level ($n = 11/50\%$). A majority of the men had an on-site job ($n = 17/77.2\%$), whereas, a minority ($n = 5/22.7\%$) had management jobs. Sixteen respondents had more than 15 years of experience. Finally, most of the men ($n = 19/86.3\%$) lived in the Abitibi-Témiscamingue region (Table 1)

The men's participants work mainly underground ($n = 16/72.7\%$), and also in the open air ($n = 6/27.2\%$). They are exposed in their work to total darkness with headlamps (underground), significant dust despite the installation of a ventilation system in some places (this does not go underground), heat (underground), or extreme cold (on the surface), regular diesel fuel boilers (underground) through the use of large machinery, limited access to water, and toilets due to the distance sometimes in km from the workplace to these basic services, and so on. The participants have a very variable rotating schedule, for example, 7/7, 14/14, 21/7, and so on. Mostly on 12-hr shifts, sometimes day, other times night. Some men may work continuous day/night rotations and other men may only work day shifts depending on their job title.

In the camps that are licensed for miners, there will be rooms that are shared by two employees according to their opposite shift (day and night). When one man is off work the other works and uses the room and vice versa. A gym and a cafeteria are available on site for the workers. Dry camp where the consumption of drugs or alcohol is prohibited. In terms of mental health counseling, employers know when a man leaves for mental health reasons. Often, it is the worker who informs his employer of his health condition. However, the situation when it comes to mental health is often unclear to co-workers. Mental health is still taboo, especially in the mining industry, although some men dare to break the silence. There are still too many men who hide their psychological distress when it exists.

Result

The study made it possible to determine the impacts of FIFO on the men's overall health. The first part will cover results with respect to the men's mental health. The second part will discuss the participants' physical health. Finally, the topic of health-related consultations in a mining environment will be covered.

Men's Mental Health

In terms of the men's mental health, several topics emerged and were documented: anxiety at the family

Table 1. Sociodemographic Characteristics of the Participants.

| Characteristics | N = 22 | % |
|------------------------------------------|--------|------|
| Age | | |
| 18 to 54 years | 20 | 90.9 |
| 55 years and older | 2 | 9.1 |
| Civil status | | |
| Single | 5 | 22.7 |
| In a relationship | 9 | 40.9 |
| Married | 6 | 27.3 |
| Divorced | 1 | 4.5 |
| Separated | 1 | 4.5 |
| Number of children | | |
| No children | 7 | 31.8 |
| One child | 4 | 18.2 |
| Two to three children | 8 | 36.4 |
| Four children or more | 3 | 13.6 |
| Level of education completed | | |
| Secondary school | 7 | 31.8 |
| Diploma of vocational studies | 11 | 50 |
| College | 2 | 9.1 |
| University | 2 | 9.1 |
| Job title | | |
| Supervisor, foreman, or mine manager | 5 | 22.7 |
| Winch operator | 1 | 4.5 |
| Miner (construction or underground) | 5 | 22.7 |
| Special constable | 1 | 4.5 |
| Civil engineering technician | 1 | 4.5 |
| Lineman | 2 | 9.1 |
| Crane operator | 1 | 4.5 |
| Mechanic | 3 | 13.6 |
| Drill operator | 1 | 4.5 |
| Heavy equipment operator | 1 | 4.5 |
| Factory operator | 1 | 4.5 |
| Seniority (work experience) | | |
| 0 to 4 years | 6 | 27.3 |
| 5 to 9 years | 8 | 36.4 |
| 10 to 14 years | 6 | 27.3 |
| 15 years or more | 2 | 9.1 |
| Place of residence | | |
| Abitibi-Témiscamingue region | 19 | 86.4 |
| Outside the Abitibi-Témiscamingue region | 3 | 13.6 |

level, feelings of powerlessness, job-related stress, irritability on returning home, and men's capacity for resilience.

Anxiety at the Family Level

FIFO work contributes to a multitude of fears among workers. In fact, men stated they were worried about the

idea of leaving for several days on end, and that something unexpected might happen during their absence, such as a family emergency:

So I'm leaving tomorrow morning. And you know, I've been thinking about it for a couple of days now. And you know, I'm a bit worried. And today is harder because I know I'll be leaving tomorrow for two weeks. And it's tough on the morale. No matter . . . OK, it's a beautiful day. I'll try to enjoy it. But whether you want to or not, you think about it. You know you have to get up tomorrow and the *kids* will be sleeping. We have to leave, but they won't see us. So you know, it's not for everyone. It's hard. (H6)

Well for me, I get pretty worried about it, my personal life. There was some major flooding, did you hear that things melted really fast? Some guy ended up with his basement filled with water. And me, I know that if I'm in the north, *man oh man*, I get stressed out, I get anxious, and it's no fun, and I get worried. My mind keeps spinning. (H18)

Feelings of Powerlessness

In addition to feeling anxious, various respondents identified feelings of powerlessness. In this regard, participants shared their concerns, particularly with respect to the family sphere:

Definitely when there are situations and then I'm in the north, well it's a bit harder because you're far away and unless it's something major, you can't go back. For sure if there's something really major, a death or serious injury, or something really serious happens to a child, they'll let us, they'll fly us so we can get home, but if not . . . for anything not that serious, well, you feel pretty darned powerless. It's pretty much the toughest feeling when you're out there. Because it's your wife telling you stuff. You have a bit of an idea of what's going on, but you feel powerless. You can't do anything except talk on the phone. (H7)

Job-Related Stress

On another note, two other men who were interviewed and who held supervisory roles in a mining operation mentioned that their responsibilities continued to be mentally demanding, which resulted in an emotional burden that they carried every day:

Especially when I get home, I'm really tired for three or four days. Physically and mentally. Because mentally, as a supervisor, you have a lot to manage, everyone's stress for 14 days straight. Things don't go well at home for everyone. You also have to play the role of psychologist a bit from time to time. (H1)

I'd say mentally burned out. Yes. The runs are hard, it depends on the type of people, especially with a supervisor position and all that. (H13)

Irritability on Returning Home

In particular, the demands of FIFO work have an impact on the health and well-being of men when they return home. In this regard, two men indicated that the lack of sleep and change in routine affects their mood:

So I know that on the day I get home, my family tells me I'm a bit impatient. So the day after, things get better. But it wasn't like I was feeling that they were annoying me, but, you know, they changed my energy a bit, then, you know, when they say that you're an old guy, you know. (H8)

Men's Capacity for Resilience

Despite various psychological demands, a capacity for resilience was noted among several of the men interviewed. This is a strategy to adapt to the demands of the work environment:

You have to adapt. It's a bit . . . It's like not as bad as that. At a certain point, we, we agree that we get used to it, but someone who is totally not in the field, say who's starting out and sees that, he'll say, "Dang, what's this? Where do you go to the bathroom? How does that work? You drink what?" But if in the meantime, you lose it, you break it, or . . . sometimes, it's not always obvious. (H6)

Men's Physical Health

FIFO work has a certain impact on workers' physical health. Participants' statements point to different definitions of physical health. Premature aging, physical inactivity at work, weight gain, and accumulated fatigue represent all the aspects that characterize the men's physical health.

Premature Aging

FIFO work has a certain impact on workers' physical health. One man stated that he keeps up his good lifestyle habits even if the profession of mining is, according to him, conducive to premature aging among those in the field:

Definitely, when I'm here for two weeks, well, I go to the gym. I eat well. I work out. I'm active. So, you know, that makes up for it. When I come back, I get back on top of it in the two weeks I'm gone. There are a lot who, I don't know if they're aware of it or if they'll realize it, but for sure, people in the mining world, they definitely age much faster I think that on average, relatively speaking. Yeah. (H6)

Physical Inactivity at Work

For some of the men interviewed, their lifestyle in the context of FIFO work is on the sedentary side. The following excerpt illustrates this fact:

So when it comes to activities, I don't go to the gym. I don't do any of that stuff. So if I had a slower run, you'd say, well, I didn't have lots of physical activity if you will [during this time]. (H3)

I don't move a lot. For sure it's more of a sit-down job. So for sure if you don't watch it, you end up with a belly, it doesn't take long. (H2)

Weight Gain

Despite various opinions with respect to considering food in the context of FIFO work, several workers mentioned gaining weight since starting this work:

Me, I tell you, after a month, I gained about 10 pounds. (H3)
I gained more or less 20 pounds, let's say in the nearly two years working here, let's say a year-and-a-half, let's say. (H5)

Accumulated Fatigue

Several respondents pointed out feeling a certain degree of fatigue after working for several days straight. Some managed to do fine with it, whereas others experience professional fatigue:

Well here [at work] I'm really extremely tired, but it's because it's lots of shifts one after the other. I work 14-14 or now, it's 21-7. For sure I get really tired, but it helps keep me fit if I go to the gym, plus all that, eating more balanced, all that. It's probably the most stable time in my life, it's when I'm at work [laughs]! (H16)

When I go home, very, very tired. Me, I remember that, well, sometimes we'd be stubborn, but when returning, all I asked, I said, "Look," just silence, I didn't want anything anymore, I just wanted peace. You know, I wanna say, at the end of 25 days, what I wanted was to get back to my stuff, relax, chill, but I was so tired that in September, I had some kind of burnout. (H18)

Health-related consultations sought by FIFO workers in the mining environment.

Health-Related Consultations

Despite the multiple emotional challenges encountered in the field and in the participants' family and personal lives, the frequency of health-related consultations allows us to determine that men are more likely to seek help for

Table 2. Frequency of Men's Mental and Physical Health Appointments.

| Appointment/professional appointment frequency | Doctor | | Psychologist | | Social worker | |
|------------------------------------------------|----------|-------------|--------------|-------------|---------------|-------------|
| | <i>n</i> | % | <i>n</i> | % | <i>n</i> | % |
| <i>N</i> | | | | | | |
| At least once in the last 2 years | 16 | 72.7 | 1 | 4.5 | 1 | 4.5 |
| No appointments in the last 5 years or more | 4 | 18.2 | 0 | 0.0 | 0 | 0.0 |
| Never had an appointment in their entire life | 0 | 0.0 | 4 | 18.2 | 3 | 13.6 |

reasons related to physical health than mental health (Table 2). Health care is one of the most frequently requested health services by these workers, though this service is still under-utilized in the mining field. In this regard, three men indicated never having sought mental health-related help during their entire life, and in contrast, three other respondents reported having seen a doctor a few times:

One doctor, about a year ago. And it's not because I needed to. It's just because I changed family doctors, and she wanted to do a follow-up with her new patients, basically. A psychologist, all that, I've never seen one. (H4)

Personally, I've never gone to see a psychologist. (H10)

As for me, in my case, I've never had to make a mental health appointment. (H15)

Well for me, the last doctor, was when I went in for Opinaca. That was nine years ago. (H12)

Consultations with a psychologist or social worker remain a service that is under-utilized by study participants. These data allow us to observe that the tendency of respondents when it comes to health and well-being continues to be an aspect of life that is neglected and even ignored, a trend common in the mining world.

Discussion

The study results indicate that the mental health of men is not spared in the mining environment. Our results are reflected in several studies conducted among men who indicate that they suffer more from fatigue, frequent irritability, and anxiety (Barclay et al., 2013; Beauchemin, 2020; Gardner et al., 2018; Ostigny et al., 2017), which was the case in this study. According to Torkington et al. (2011), men who do FIFO work feel worried about their inability to respond to family emergencies, which is reflected in our study, where several men indicated feelings of anxiety or of powerlessness in the eventuality that something unexpected might happen at home during their absence.

In any event, the anxiety mentioned by the men who participated in the study has an impact on the personal

sphere. According to INSPQ (2018), many FIFO workers admit to consuming alcohol and drugs to help them sleep better and manage their anxiety at work, something also determined by our study. In addition, it was noted that a lack of sleep and having to adjust to a new routine affected the participants' mood, which is confirmed by studies conducted by Gardner et al. (2018) and Ostigny et al. (2017). These authors indicate that after 8, 9, or 10 consecutive days of work, men who do FIFO work suffer increasingly from fatigue and are more irritable. Several men experience feelings of loneliness, which is, in particular, brought about by being far from their families and relatives, which has, incidentally, been observed in several studies (Albrecht & Anglim, 2017; Blackman et al., 2014; Infrastructure Planning Natural Resources Committee, 2015; McTernan et al., 2016).

With respect to the physical health of participants, our results allow us to point out that FIFO work can be conducive to the premature aging of workers, as the men indicated. This is the result of working in an environment typified by extreme heat or extreme cold, dust, darkness, or even constant exposure to diesel fumes from the equipment being used, all realities to consider and all conducive to speeding up aging. In addition, it was determined that accumulated fatigue, felt more and more toward the end of the workday, causes some men to feel the need for extra sleep, among others on their return home. The testimonies of the men who participated in the study are consistent with some literature maintaining that men who do FIFO work need a rest period of several days when they return home, which sometimes makes them less emotionally available to their immediate family (Beauchemin, 2020; Rebar et al., 2018; Taylor & Simmonds, 2009). The results of the study conducted by Gardner et al. (2018) contending that FIFO workers place more importance on physical health because of the stigma surrounding health in the mining context are consistent with our findings, as the participants in our study reported seeking help regarding their physical health more frequently than for their mental health. This type of refractory behavior, namely that of focusing on their overall health and not appearing vulnerable, can be explained by the values associated with hegemonic masculinity: macho man, independent, and family provider (Connell & Messerschmidt, 2015; Ebert & Strehlow, 2017; Gilbert, 2019).

Respectively, the theory of hegemonic masculinity allows us to point out that the mining culture is sometimes the breeding ground for traditionally idealized male role models, where resilience is accentuated to the point of having a detrimental effect on men's health (Connell & Messerschmidt, 2015). Despite this discovery, the level of physical activity and lack thereof connected to certain types of jobs remains one of the realities that are typical to the FIFO lifestyle and that are conducive to weight gain, as illustrated in previous studies (Blackman et al., 2014; Torkington et al., 2011; Weeramanthri & Jancey, 2013).

The frequency of mental health consultations remains lower in the mining context, despite the many emotional challenges encountered in the field or even in the participants' family or personal lives. In fact, at their place of work, most of the men interviewed are more likely to make appointments regarding their physical health. Several men reported having already consulted with one doctor over the course of their life, while others stated never having seen a professional for mental health reasons since their birth. In this regard, the study by Joyce et al. (2013) highlights that men who do FIFO work are less likely to report mental health problems and are thus more inclined to endure emotional pain. The fear of being judged and of losing their job for mental health reasons is common among many men in the mining field, which was determined in our study and in that conducted by Gardner et al. (2018) and Sellenger and Oosthuizen (2017).

Conclusion

The study aims to gain a better understanding of the impacts of FIFO on the overall health of men in the mining environment and the relationship these men have to seeking help. Results show that men face several challenges at work that can affect their overall health and make them vulnerable: performance requirements, difficult environmental conditions, negative emotions (anxiety, irritability, feelings of powerlessness, neglect, loneliness); as well as fatigue, physical inactivity, weight gain, and alcohol and drug consumption. Otherwise, the frequency at which men seek consultation for mental health reasons continues to be a challenge for men in a work culture that does not promote self-help among men. The men are trapped in a work environment that tends more to encourage the standards of masculinity, such as hiding emotions, being stoic, ignoring pain (illness), or suffering. This environment defines a culture of silence and taboos surrounding mental health, which makes it difficult for men to take action and seek help or make appointments addressing mental health.

This study covered almost all the mining operations offering FIFO work in the study region; recruiting study participants was specifically heterogeneous (job sector,

age, civil status, number of children, education, job type, and seniority). However, the fact remains that this formative study focuses primarily on conditions in rural regions, which are different from conditions in urban regions.

Limitations

This study presented several limitations, one of which was the time required for participation. In this sense, the length of the interviews was very variable, ranging from 15 min to over an hour, at the convenience of the participants. A second limitation in this study revolves around the anticipated unease connected with the stigma surrounding mental health in the mining world. Despite this anticipation, collaboration with the men was very active given the atmosphere of trust, and as a result, conversations with most of the participants during the recorded sessions were very open. A third limitation was due to the COVID-19 pandemic. Because of pandemic restrictions, none of the men were seen in person. One final limitation was the attempt to contact mining operations without relying on a predefined trajectory, which was offset by using snowball sampling. Recruitment via social media was particularly successful in allowing us to contact men in the mining environment.

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