

PEER REVIEW HISTORY

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ARTICLE DETAILS

TITLE (PROVISIONAL)	Mental health and wellbeing concerns of fly-in, fly-out workers and their partners in Australia: A qualitative study
AUTHORS	Gardner, Benjamin Alfrey, Kristie-Lee Vandelanotte, Corneel Rebar, Amanda L

VERSION 1 – REVIEW

REVIEWER	Prof Tarun Sen Gupta James Cook University Australia
REVIEW RETURNED	28-Sep-2017

GENERAL COMMENTS	<p>This is a clear and well-written paper that addresses an important and under-explored topic. I found a number of new and useful insights, and appreciated the suggestions for solutions to the issues identified. Quotations are used well to illustrate and illuminate the argument.</p> <p>A couple of minor points the authors may wish to consider:</p> <ul style="list-style-type: none">- the literature also mentions Drive In - Drive Out (DIDO) workers, perhaps this term could be mentioned (p4 of 32)- REF 9, 2nd author is LARKINS, not LARKINGS (and 3rd author is strictly SEN GUPTA, but original citation may be in error)- I note some variety of findings in the studies cited on p 5, possibly due to contextual factors; the authors may wish to briefly address this point
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REVIEWER	Glen Schmidt UNBC Canada
REVIEW RETURNED	11-Oct-2017

GENERAL COMMENTS	<p>The literature review is brief and somewhat weak. The references pertain largely to Australia. There is considerable material pertaining to FIFO and LDC and the effects on families and relationships that could be included. For example: Landesman & Seward, 2013; Lewis, Shrimpton, & Storey, 1988; Ryser, Schwamborn, Halseth, & Markey, 2011; Sandow, 2014; Storey, 2009, 2010; Whalen & Schmidt, 2016. I think a more thorough and robust literature review would improve the overall quality of the article. The findings are similar to other research on the topic but, as the authors note, it may well be the only research that examines both partners. The on-line</p>
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	data gathering creates efficiency but doesn't allow for a full expression of participant ideas in this type of qualitative research.
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REVIEWER	Dr. Christina Murray University of Prince Edward Island, Canada
REVIEW RETURNED	16-Nov-2017

GENERAL COMMENTS	<p>This is an excellent paper! The writing and organization flowed well. I do have some comments that I believe will help strengthen this paper further.</p> <p>1. Participants - I think that it would be helpful to expand on the N and process for recruitment. There are a total of 34 FIFO's yet only 25 of these are men. Does this mean that you had both men and women included as FIFO employee participants? Also you identify 26 partners, so would this represent an inclusion of same sex couples? You also have identified 6 couples, are these 12 people in addition to the total N of 34 and 26 identified? As well, a bit more information about strategies for recruitment and uptake via these approaches would be helpful. There are many researchers interested in using these approaches in their migration research and your successes/lessons learned would be helpful to share. Also, as Australia, like Canada is a vast geographical country, it would be helpful to identify the distance people are commuting for employment. Finally, it is not clear why you chose a gift card as an incentive for participation, what the gift card was for, and how the value was determined at \$30.00.</p> <p>Procedures - It would be helpful to explicitly identify that the whole approach to data collection was via online survey and your rationale for this choice. As this is a qualitative research study, I was not expecting that a survey design with closed ended yes/no questions would have been the method of choice. I think that this is actually a great approach in light of the varied schedules of participants and time demands of FIFO families left behind. I feel that it would be helpful to offer another sentence or two that identified why you chose this method for data collection. The need for people needing to share their stories of experience is evident with all of your participants offering textual responses to each yes/no question posed. You identify at the end of this section that copyright fees were paid as necessary. Was this a copyrighted survey? If so, you should identify the original source who is credited with creating this tool.</p> <p>Analyses: I am confused as to why you would have a UK research with no familiarity with FIFO analyzing your data. It would be helpful to expand on the rationale for this choice in this section of your paper.</p> <p>Results: This section was excellent!! Great quotes offered to support points being raised</p> <p>Discussion: Great discussion - clearly written. It was good to read the clear rationale offered for using a survey design. From an organizational perspective, it would be helpful to offer a separate header for limitations as well as recommendations for future study in this area. I agree that this could very well be a limitation of the study as the data obtained may not be as rich or expansive as what may</p>
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	<p>have been obtained through individual interviews.</p> <p>Final comments: I thoroughly enjoyed reviewing this paper!! As a Canadian researcher who is leading a multi-year, multi-site, qualitative study examining the family impacts of labor migration from Eastern to Western Canada for work in oil and gas sectors, my research team has examined how multiple family members experience of the FIFO life (we call it Geographical Related Labor Mobility or interprovincial labor mobility). We have conducted narrative conversational interviews with full family units (men who are leaving for work in oil and gas, women left behind caring for children and extended family members such as grandparents who support these families through repeated patterns of separation and reunification. We have also interviewed 12 different sectors (health, addictions, mental health, spiritual health, education, economic development, etc.) who strive to support these families. Your paper mirrors many of the findings that we have discovered. I would love it if you would connect with me in the future - It would be great to work together and do some comparative qualitative research on the Australian/Canadian family experience of labor migration. :)))</p>
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VERSION 1 – AUTHOR RESPONSE

We appreciate the opportunity to revise and resubmit our manuscript for publication consideration in BMJ Open. We have included the text of relevant revisions within the responses following and have used the track changes mode in Word in the attached revised manuscript.

Editorial Requests:

Please remove the 'key findings' section (this is not a journal requirement).

We have removed the section.

- Can you include more information about how the survey was developed/ put together? Has it been used in previous studies? If your research team has developed it for this study then please include a blank copy of the survey as a supplementary information file.

We clarified in the procedures section that the questions were developed for the purpose of this study. Additionally, we added the blank copy as a supplemental file.

Methods (p. 7): "Participants were then asked to respond to a set of questions about the FIFO lifestyle via email. The questions were developed for the purposes of this study and the full list of questions are available as Supplemental File 1."

- It is not clear why you have included a completed SQUIRE checklist, which is for quality improvement studies. Please remove this and instead complete a COREQ checklist, which is for qualitative studies. See: <http://www.equator-network.org/reporting-guidelines/coreq/>

We apologize for including the incorrect checklist. This has been replaced with the COREQ.

- Authors' Contributions (page 24): please ensure all authors are meeting the ICMJE criteria for authorship (<http://www.icmje.org/recommendations/browse/roles-and-responsibilities/defining-the-role-of-authors-and-contributors.html>). Were all authors involved in drafting the work or revising it critically for important intellectual content and gave final approval of the version to be published? Yes. All authors meet the ICMJE criteria for authorship. We have revised the Author Contributions page to clarify that each author's role.

Author contributions (p. 24): "KLA, CV, and AR helped conceive of the idea of the study design, collected the data, and provided intellectual content for the manuscript. BG conducted the data analysis, assisted in interpreting the findings, and provided intellectual content for the manuscript. All authors were involved in drafting the manuscript and revising it critically for important intellectual content and gave approval of the final version to be published."

Reviewers' Comments to Author:

Reviewer: 1

Reviewer Name: Prof Tarun Sen Gupta

Institution and Country: James Cook University, Australia

Competing Interests: none declared

This is a clear and well-written paper that addresses an important and under-explored topic. I found a number of new and useful insights, and appreciated the suggestions for solutions to the issues identified. Quotations are used well to illustrate and illuminate the argument. We appreciate the comments.

A couple of minor points the authors may wish to consider:

- the literature also mentions Drive In - Drive Out (DIDO) workers, perhaps this term could be mentioned (p4 of 32)

We appreciate the point and have added mention of DIDO to the opening sentence.

Introduction (p. 4): "With unique work shifts come unique lifestyle situations. Fly-In Fly-Out (FIFO; also known as Drive-In Drive-Out; DIDO) work involves employees travelling long distances to the worksite, living in provided accommodation during their on-shift roster, and travelling home between shifts [1]."

- REF 9, 2nd author is LARKINS, not LARKINGS (and 3rd author is strictly SEN GUPTA, but original citation may be in error)

Our apologies on the mistakes. We have corrected the in-text citation and reference.

- I note some variety of findings in the studies cited on p 5, possibly due to contextual factors; the authors may wish to briefly address this point

We have addressed this point by describing how the impact of FIFO work on mental health will vary across individuals and contexts.

Introduction (p. 5): "FIFO work may also impact on the wellbeing of workers' significant others. Most research on the impact of FIFO work on mental health or wellbeing has centred on workers' children. While one study [14] found no differences between FIFO families and non-FIFO families in relationship quality, parenting competence or child emotional and behavioral difficulties, another [15] showed that adolescent children's depressive symptoms and emotional and behavioral difficulties could be partially attributed to the intermittent parental absence that characterises FIFO employment.

While these findings suggest that the extent of impact of FIFO work on mental health may vary depending on the people involved and the home and work contexts, they nonetheless point to the potential for FIFO work to impact on family members.”

Reviewer: 2

Reviewer Name: Glen Schmidt

Institution and Country: UNBC Canada

Competing Interests: None

The literature review is brief and somewhat weak. The references pertain largely to Australia. There is considerable material pertaining to FIFO and LDC and the effects on families and relationships that could be included. For example: Landesman & Seward, 2013; Lewis, Shrimpton, & Storey, 1988; Ryser, Schwamborn, Halseth, & Markey, 2011; Sandow, 2014; Storey, 2009, 2010; Whalen & Schmidt, 2016. I think a more thorough and robust literature review would improve the overall quality of the article.

We very much appreciate the citations provided and we have added them to the introduction and discussion. Unfortunately, we were not able to elaborate much on the literature review in the introduction given the space constraints of the journal.

Introduction (p. 4): “However, research suggests that FIFO work has both costs and benefits for mental health and wellbeing [9, 10].”

Introduction (pp.5-6): “Quantitative survey findings from Israel and the United States suggests that FIFO work can have a modest negative impact on couples’ relationship satisfaction [17]. A case study conducted in Canada found that FIFO couples can face numerous challenges including transitioning between on-shift and off-shift roles and parenting [18].”

Discussion (p. 20): “Similar experiences have been documented among other long-distance commuters, such as long-haul truckers and commercial fishermen [18,32].”

Discussion (p. 20): “Modern advancements in communication (e.g., video calls, social media) may help reduce, but not fully alleviate, some of the concerns of geographical distance for FIFO workers and their partners [18].”

Discussion (p. 23): “There are likely unique mental health and wellbeing concerns for FIFO workers in different regions, roster lengths, and occupations [17].”

References added:

9 Lewis J, Shrimpton, M, Storey K. Family members’ experience of offshore oil work in Newfoundland. In: Women, work and family in the British, Canadian and Norwegian offshore oilfields. London: Palgrave Macmillan 1988:163-189.

10 Ryser L, Schwamborn J, Halseth G, & Markey S. Working 'away': Community and family impacts of long distance labour commuting in Mackenzie, BC: Final report. Prince George, BC: Community Development Institute University of Northern British Columbia 2011.

17 Landesman, J, Seward RR. Long distance commuting and couple satisfaction in Israel and United States: An exploratory study. J Comp Fam Stud 2013: 765–781.

18 Whalen H, Schmidt G. The women who remain behind: Challenges in the LDC lifestyle. *Rural Soc* 2016;25:1-14.

The findings are similar to other research on the topic but, as the authors note, it may well be the only research that examines both partners. The on-line data gathering creates efficiency but doesn't allow for a full expression of participant ideas in this type of qualitative research.

We agree that the online data collection has limitations in that it may not fully capture participants' full expression of ideas; however there are benefits as well. Online data collection allowed for a broader reach when sampling the target population and allowed for anonymity, which overcomes the barrier of stigma associated with talking about mental health, which can be off-putting especially for this population (Sartorius, 2007). It may be that this anonymous platform provided more genuine responses. We agree, however, that more thorough interviews are needed to further drill into the findings of this study. We revised the methods and discussion section to elaborate on these points.

Methods (p. 7): "Participants self-reported their age, sex and their (or their partner's) FIFO working patterns (e.g., roster length) through an online survey. They were also asked whether overall, they liked (their partner) being a FIFO worker or not (yes/no). Participants were then asked to respond to a set of questions about the FIFO lifestyle via email. We chose to collect data via email to gain access to FIFO workers and partners situated across Australia, including those at FIFO sites, with minimal inconvenience to participants. Additionally, the email-based survey may have allowed participants to feel less identifiable when responding about potentially stigmatizing mental health issues than is possible with face-to-face interviews.

The questions were developed for the purposes of this study and the full list of questions are available as Supplemental File 1. Example questions include "Are you concerned about how the FIFO lifestyle affects you?" and "Do you have suggestions on how support for FIFO workers and FIFO partners could be made better?" Although these were not open questions, participants were invited to provide free-text (rather than yes/no) responses, and all participants did so. The terms 'mental health' and 'wellbeing' did not feature in the questions, to minimise potential self-presentational concerns inhibiting disclosure of relevant issues. All participants provided informed consent prior to participating in the study and all study procedures were approved a priori by the Central Queensland University Human Research Ethics Committee.."

Sartorius, N. (2007). Stigma and mental health. *The Lancet*, 370(9590), 810-811.

Reviewer: 3

Reviewer Name: Dr. Christina Murray

Institution and Country: University of Prince Edward Island, Canada

Competing Interests: None declared

This is an excellent paper! The writing and organization flowed well. I do have some comments that I believe will help strengthen this paper further.

Thank you for your kind words and suggestions.

1. Participants - I think that it would be helpful to expand on the N and process for recruitment. There are a total of 34 FIFO's yet only 25 of these are men. Does this mean that you had both men and women included as FIFO employee participants? Also you identify 26 partners, so would this represent an inclusion of same sex couples? You also have identified 6 couples, are these 12 people in addition to the total N of 34 and 26 identified? As well, a bit more information about strategies for recruitment and uptake via these approaches would be helpful. There are many researchers

interested in using these approaches in their migration research and your successes/lessons learned would be helpful to share. Also, as Australia, like Canada is a vast geographical country, it would be helpful to identify the distance people are commuting for employment. Finally, it is not clear why you chose a gift card as an incentive for participation, what the gift card was for, and how the value was determined at \$30.00.

We revised this section to clarify that we do have 9 female FIFO workers in the study and that eligibility for the study was not contingent on having both partners involved; therefore most of our study participants were in relationships with people outside of the study. Only for 6 couples, did both partners provide data. For those whose partners were not in the study, we did not collect data about partner sex. Neither did we collect information about the distances people were traveling to work (nor the mode of travel). Therefore, we could not report those descriptive statistics in the manuscript.

In regards to your question about recruitment, we were fortunate in that the social media groups were supportive of helping to spread the call for participants and we had local media coverage as well, which led to participants reaching out to us to get involved. We think the uptake by participants to get involved with the study highlights that FIFO workers want a voice to address these concerns.

Methods (pp. 6-7): "Study recruitment was conducted through FIFO-relevant online social media group pages and media outlets of regional Australian audiences (e.g., radio, television, newspapers, websites). Eligibility was not contingent on both partners of a couple being involved in the study, making it possible that the partner of a FIFO worker may have participated despite the worker him or herself not doing so, and vice versa. In return for their involvement, participants were entered into a random draw for \$30 AUD (US\$24) gift vouchers, a value which we deemed to be motivating, but not coercive, for potential participants. No a priori sample size requirements were set.

The final dataset comprised 34 FIFO workers (25 men [79%], 9 women [21%], M age = 41y, SD = 11, age range = 25 – 65y) and 26 partners of FIFO workers (all women, M age = 40y, SD = 9, age range = 27 – 58y). The sample included 6 couples (i.e. 6 workers, 6 partners). The remaining 48 participants (28 FIFO workers, 20 partners) took part in the study without the involvement of their partners."

Procedures - It would be helpful to explicitly identify that the whole approach to data collection was via online survey and your rationale for this choice. As this is a qualitative research study, I was not expecting that a survey design with closed ended yes/no questions would have been the method of choice. I think that this is actually a great approach in light of the varied schedules of participants and time demands of FIFO families left behind. I feel that it would be helpful to offer another sentence or two that identified why you chose this method for data collection.

We collected data through email for two main reasons. First, we wanted to extend our reach across Australia. Second, we wanted to reduce the potential stigma of talking about mental health issues. We have revised the procedures section to describe these reasons as part of the procedures description.

Methods (pp. 7-8): "Participants self-reported their age, sex and their (or their partner's) FIFO working patterns (e.g., roster length) through an online survey. They were also asked whether overall, they liked (their partner) being a FIFO worker or not (yes/no). Participants were then asked to respond to a set of questions about the FIFO lifestyle via email. We chose to collect data via email to gain access to FIFO workers and partners situated across Australia, including those at FIFO sites, with minimal inconvenience to participants. Additionally, the email-based survey may have allowed participants to feel less identifiable when responding about potentially stigmatizing mental health issues than is possible with face-to-face interviews.

The questions were developed for the purposes of this study and the full list of questions are available as Supplemental File 1. Example questions include “Are you concerned about how the FIFO lifestyle affects you?” and “Do you have suggestions on how support for FIFO workers and FIFO partners could be made better?” Although these were not open questions, participants were invited to provide free-text (rather than yes/no) responses, and all participants did so. The terms ‘mental health’ and ‘wellbeing’ did not feature in the questions, to minimise potential self-presentational concerns inhibiting disclosure of relevant issues. All participants provided informed consent prior to participating in the study and all study procedures were approved a priori by the Central Queensland University Human Research Ethics Committee.”

The need for people needing to share their stories of experience is evident with all of your participants offering textual responses to each yes/no question posed. You identify at the end of this section that copyright fees were paid as necessary. Was this a copyrighted survey? If so, you should identify the original source who is credited with creating this tool.

We removed this sentence from the manuscript given that no copyrighted materials were used. It was initially included as part of an incorrectly applied checklist (see Editor comment response above). The survey was made for the purposes of this study and is now included as a supplemental file.

Analyses: I am confused as to why you would have a UK researcher with no familiarity with FIFO analyzing your data. It would be helpful to expand on the rationale for this choice in this section of your paper.

We involved a researcher with no prior knowledge of the research domain because this means that his interpretations were solely based on the data, rather than any preconceptions. This type of researcher blindness when analysing the data is actively encouraged by some qualitative methodologists (e.g. Glaser & Strauss, 1967; Strauss & Corbin, 1998).

Glaser B, Strauss A. The discovery of grounded theory: strategies for qualitative research, Chicago: Aldin Pub. Co 1967.

Strauss, A., & Corbin, J. (1998). Basics of qualitative research techniques. Sage publications.

We have added a sentence justifying the involvement of the UK researcher.

Methods (p. 8): “The analyst was a UK-based social and health psychologist with expertise in qualitative analysis (BG), who has no personal links to FIFO, no history of research in this domain, and was unfamiliar with the FIFO research literature prior to and during the analysis. The analyst was recruited to the research team after data had been collected, to minimise the possibility that analysis would be influenced by our preconceptions of FIFO or experiences of data collection.”

Results: This section was excellent!! Great quotes offered to support points being raised

Thank you.

Discussion: Great discussion - clearly written. It was good to read the clear rationale offered for using a survey design. From an organizational perspective, it would be helpful to offer a separate header for limitations as well as recommendations for future study in this area. I agree that this could very well be a limitation of the study as the data obtained may not be as rich or expansive as what may have been obtained through individual interviews.

We have added the suggested header to the discussion section.

Final comments: I thoroughly enjoyed reviewing this paper!! As a Canadian researcher who is leading a multi-year, multi-site, qualitative study examining the family impacts of labor migration from Eastern to Western Canada for work in oil and gas sectors, my research team has examined how multiple family members experience of the FIFO life (we call it Geographical Related Labor Mobility or interprovincial labor mobility). We have conducted narrative conversational interviews with full family units (men who are leaving for work in oil and gas, women left behind caring for children and extended family members such as grandparents who support these families through repeated patterns of separation and reunification. We have also interviewed 12 different sectors (health, addictions, mental health, spiritual health, education, economic development, etc.) who strive to support these families. Your paper mirrors many of the findings that we have discovered. I would love it if you would connect with me in the future - It would be great to work together and do some comparative qualitative research on the Australian/Canadian family experience of labor migration. :)))

Thank you! We'd be keen to link up to jointly develop our research interests further. We will contact the reviewer to discuss these issues further after the peer-review process is complete."

VERSION 2 – REVIEW

REVIEWER	Glen Schmidt University of Northern BC Canada
REVIEW RETURNED	11-Dec-2017

GENERAL COMMENTS	I read the reviewers' comments and the authors' responses. I am satisfied that the authors have done their best to address the reviewers' recommendations. I believe this to be a good piece of work that can be published. It examines an area of LDC/FIFO/DIDO where there is little to no research. It makes an important contribution.
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REVIEWER	Dr. Christina Murray University of Prince Edward Island, Canada
REVIEW RETURNED	19-Dec-2017

GENERAL COMMENTS	I am pleased that the issues raised in the review have been addressed.
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VERSION 2 – AUTHOR RESPONSE

Please thoroughly proofread the paper one more time. There is a typo on page 7: "No participap. 7nts refused to participate or withdrew from the study."

The typo was corrected and a thorough proofreading was completed.

- The paragraph starting "The final dataset.." in the methods section should be reported in the results section. Can you please move this paragraph to the beginning of the results section?

The paragraph has been relocated to the beginning of the results section (p. 8).

- Please revise the title to include the study setting (e.g. "Mental health and wellbeing concerns of fly-in, fly-out workers and their partners in Australia: A qualitative study.") This is the preferred format for the journal.

We have revised the title as suggested: Mental health and wellbeing concerns of fly-in, fly-out workers and their partners in Australia: A qualitative study

- Please remove or revise the final bullet point of the strengths and limitations section. This section should not be a summary of the study's findings. Each point should relate to the study's design or methods.

We have removed the final bullet point, as requested.

- The methods section of the abstract could be more detailed/ informative. Can you use the relevant sub-headings recommended in our instructions for authors? This includes 'setting', 'design' and 'participants'.

We have revised the methods portion of the abstract to: "Design: The study design was qualitative. FIFO workers and partners responded to open-ended questions about concerns about the FIFO lifestyle and the support they use. Setting: Australian FIFO workers and partners responded to the questions via email. Participants: Participants were 34 FIFO workers (25 men, M age = 41 years) and 26 partners of FIFO workers (26 women, M age = 40 years). "