Supporting the wellbeing of MIQ facility workers in Canterbury

Survey report and rapid literature review

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For the Leadership Team
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Te Pae Māhutonga graphics courtesy of Healthy Christchurch.

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Executive summary

Background

The Information Team at Community and Public Health (the public health division of the Canterbury District Health Board), was approached by the Canterbury Regional Isolation and Quarantine (C-RIQ) leadership who were concerned by incidents of stigma and discrimination being reported to them by staff working within the Canterbury Managed Isolation and Quarantine facilities (MIQF). In order to inform next steps by the C-RIQ leadership in supporting their workforce, a rapid literature review and a survey of Canterbury MIQF staff was undertaken in late 2020.

Literature Review

To date, little or no research has been applied to understanding any work-related wellbeing impacts for individual MIQF workers, their whānau, and their communities, as well as any implications for life outside-of-work. The most closely related literature is focused on healthcare and other front-line workers' experiences within in-patient contexts, for other viral diseases such as HIV, EBOLA, MERS, SARS (although the COVID-19 literature is emerging).

In a high-stress situation, such as a pandemic response, distorted disease perception, misinformation, and fear can trigger reactions from individuals and groups that can disproportionately affect front-line workers (and their significant others) and lead to negative psychosocial outcomes. Stigma and discrimination directed towards front-line healthcare workers have been well documented across several previous viral epidemics including HIV, EBOLA, MERS, SARS, and currently COVID-19, where they have been shown to be strongly associated with low staff motivation, poor staff retention, low morale, reduced psychological wellbeing, and in some cases anxiety and depression.

The applicability of the literature review findings to COVID-19 MIQ facilities in New Zealand needs to be considered in light of the differences in illness severity and the nature of the settings studied in the literature. Despite these differences, previous epidemics and settings share many common elements, and many of the studies propose strategies that might be applied in the context of New Zealand's MIQ facilities.

Survey of Canterbury MIQF staff

Three hundred and fifty-six MIQ staff responded to the survey which was made up of 27 items, or questions, mostly presented as statements using 5-point 'strength-of-agreement' Likert scaling – Strongly disagree to Strongly agree (Appendix B). Within these 27 items, respondents were provided with eight opportunities to make free-text comments on aspects of their experience as a front-line worker in an MIQF. Where free-text responses were provided, they were analysed using a process of coding and grouping which highlighted key themes.

Quantitative Findings

Staff from all occupational groups working in Canterbury's MIQ facilities responded to the survey, with the vast majority (87%) of respondents agreeing or strongly agreeing that they were proud of the contribution they were making to New Zealand's COVID-19 response. A high proportion of respondents (87%) also reported that they felt they contributed to the success of Canterbury's MIQFs. Although 52 percent indicated that their job was fulfilling, a smaller proportion of respondents (33%) agreed or strongly agreed that their day-to-day work positively affected their health and wellbeing.

The majority of respondents agreed or strongly agreed (53%) that they felt valued as an employee by MIQF management and some 65 percent that they felt valued by MIQF guests. In contrast, 44 percent of respondents disagreed or strongly disagreed with the statement, 'I feel valued by the wider community for the work I do in the MIQFs', and only 7 percent strongly agreed with this statement.

When asked to identify any situations where they had experienced unfair treatment in non-work settings due to working in an MIQF, 147 of the 348 respondents indicated that they had not experienced any unfair

treatment. Of those who indicated that they had experienced unfair treatment, accessing health services and challenges in negotiating social life were identified most often. Health and wellbeing staff were more likely to report experiences of unfair treatment both directed towards them personally and towards their household members/family/whānau or friends.

Sixty-seven percent of respondents indicated a high level of confidence in the operating procedures in place at the MIQFs and 73 percent of respondents expressed a high level of confidence in the infection prevention and control measures. Most respondents (70%) indicated that they considered their chance of contracting SARS-CoV-2 at work to be unlikely or extremely unlikely; and when considered by occupational group, 61 percent of Health and Wellbeing staff indicated their chance of contracting SARS-CoV-2 to be unlikely or extremely unlikely.

The majority of respondents (64%) indicated they were confident of being well supported by the staff and management of the MIQFs if they did become infected with SARS-CoV-2, with only small numbers strongly disagreeing (3.6%) or disagreeing (8%). Respondents did indicate a degree of concern about the potential for media scrutiny if they did become infected with SARS-CoV-2, with 67 percent of respondents agreeing (27.7%) or strongly agreeing (39.7%) that they were concerned about this.

Quantitative survey findings indicate that many respondents:

- are proud of the contribution they are making to New Zealand's COVID-19 response,
- feel they are making a positive contribution to the success of Canterbury's MIQFs,
- feel valued as employees by the MIQF management,
- feel valued by MIQF guests,
- have a high level of confidence in the operating procedures and infection prevention and control measures in place,
- believe their chance of contracting SARS-CoV-2 at work to be low, and
- believe they would be well supported by staff and management of the MIQFs if they were to become infected with SARS-CoV-2.

Survey findings also indicate that many respondents:

- do not feel valued by the wider community for the work they do in the MIQFs,
- are concerned about media scrutiny if they became infected with SARS-CoV-2, and that
- some respondents have experienced unfair treatment as a result of their MIQF employment, as have some respondents' household members/family/whānau and friends.

Qualitative Findings

The qualitative survey data suggest high levels of job satisfaction for many workers, with accounts of respect and kindness, pleasant experiences, and experiences that have enhanced some workers' life skills. However, the findings also indicate dissatisfaction and varying levels of distress for some workers. The main themes identified are summarised below, grouped into two broad categories: 1) *appreciated or helpful* and 2) *issues or concerns*.

Appreciated or helpful

Many respondents reported generally positive experiences as an MIQF worker. These respondents described aspects of the MIQF environment and/or management supports that were appreciated or helpful and contributed to their job satisfaction and wellbeing. These respondents indicated that they understood the purpose of their work and the inherent challenges. Generally, these respondents appreciated the positives and tended to accept the less desirable aspects of MIQF work.

- Supportive environment: workers are well-supported within their MIQF working environments; managers are kind and caring and *'willing to defend'* MIQF workers against discrimination; managers employ a partnership approach.

- Good communication is highly valued: communication from MIQF management is highly valued and is seen as critical to the efficient and safe operation of MIQ.
- Clear simple systems: clear and robust systems are in place in MIQFs and these are appreciated and essential, as the border response is complex and dynamic, and MIQ involves multiple agencies.
- Training: comprehensive training is available, as needed.
- Health protection: health checks, testing, and access to PPE are reassuring (and essential).
- High levels of job satisfaction: positive encounters with guests, being treated with respect and gratitude, learning professionally, and making an important contribution to New Zealand's COVID-19 response.

Issues or concerns

Some respondents provided critiques of the working environment, systems, procedures, coordination, and supports, and some respondents made suggestions for improvements. In addition, respondents indicated that MIQF work brings with it a set of role-related burdens that are challenging for many workers – not necessarily the work itself, but being an MIQF worker. Some respondents reported that they have no issues at all with the work that they do or with the MIQ environment as a workplace, but provided examples of the limitations, burdens, and inconveniences that they encounter – because of others' perceptions – and how these burdens affect their personal lives and their interactions with their community. The key themes describing issues and concerns about aspects of MIQF work (or being an MIQF worker) are listed below.

- Stigma/public image: many respondents described instances of social avoidance, rejection, and exclusion from extended family, friends, colleagues (not in MIQF), healthcare staff, and other service providers.
- The Media: many respondents expressed concern about the negative framing of some media reports about MIQ facilities and MIQF staff.
- Media campaign: some respondents expressed the view that the New Zealand public is relatively uninformed about the complexities of the MIQ system and that a government-led media campaign could be used to educate the public and thereby reduce misinformation and the stigma and discrimination commonly directed towards MIQF workers.
- Access to healthcare: many respondents detailed experiences where they had encountered barriers to accessing healthcare or had encountered stigmatising responses from healthcare providers (this was a strong theme that was expressed across a number of questions in the survey).
- Impacts on personal life: many respondents described restricting activities across most domains of life, including: not visiting the elderly and other vulnerable groups; not socialising with family and friends; not participating in sports; not attending the gym, clubs, church, or the movies; avoiding large gatherings; and avoiding close-contact service providers such as hairdressers, dentists, and healthcare providers. Respondents also described situations where they needed to provide hosts with proof of negative COVID-19 test results before they were permitted to attend gatherings or events.
- Support and engagement from management and officials: some respondents indicated that they looked for better communication from managers and officials, more signs of appreciation, more time spent paying attention to workers' needs, and a greater focus on mental health.
- Standardisation: some respondents looked for greater standardisation of rules, procedures, and duties, and for more consistency in how the different agencies interact.
- Information systems: some respondents reported challenges in the accessibility, consistency, and timeliness of information and indicated the need for more advanced or integrated information systems.
- Remuneration and barriers to secondary employment: some respondents commented on the difficulty of the work with respect to their remuneration, as well as the absence of hazard pay. Some respondents reported other financial impacts such as being blocked from secondary employment (where no contractual barrier applied).

Suggested priorities for supporting MIQF staff wellbeing

The following suggested priorities are based on the survey findings as well as information derived from the international literature (Appendix A). Generally, the survey findings align with the findings in the international literature.

The strategies listed below may be useful in the support of wellbeing for front-line staff within MIQ facilities in Canterbury. It is noted that some or many of these strategies may already be in place to varying extents (the survey was cross-sectional; therefore, the findings only present a snapshot in time and they cannot reflect more recent events). This is especially important in light of the rapidly evolving nature of the COVID-19 response and the time elapsed since the closure of the MIQF staff survey (11 January 2021).

Specific actors have not been identified for the strategies below as it is expected these will be identified, as necessary, by the C-RIQ leadership and other relevant stakeholders.

1. Continue to monitor the overall wellbeing of all staff working within the MIQF system, with a focus on specific and/or emerging areas for intervention/improvement.
2. Continue to communicate acknowledgment from government officials and other public figures of the demands of MIQ work, and issue statements against COVID-related stigma and discrimination.
3. Develop interventions to reduce stigma, tailored to the local context, such as media campaigns.
4. Work to ensure barrier-free access to healthcare services for staff working within the MIQF system, implementing additional communications strategies or services/infrastructure as needed.
5. Explore options for ongoing supportive supervision and psychological support for MIQ workers.
6. Continue to provide workers with training to build and maintain confidence in providing the care/services required.
7. Consider a mechanism, such as a web-based/mobile application, to provide staff with easily accessible up-to-date notifications of SOP/protocol updates, logistics, and other essential information.
8. Disseminate guidance regarding MIQF workers' off-duty interactions with others. As part of this, consider developing tailored guidelines to share with third party organisations (e.g., service providers, clubs, sports facilities, and other workplaces).
9. Ensure staff continue to be aware of the procedure in the case of a staff member being identified as a COVID-19 case (including privacy considerations, accommodation, and welfare support).

Introduction

Infectious disease control is a crucial public health issue. Several viral epidemics or pandemics have occurred in the past 20 years, including Severe Acute Respiratory Syndrome (caused by the SARS-CoV-1 virus) in 2003, H1N1 Influenza (influenza A virus subtype H1N1) in 2009 [1], Middle East Respiratory Syndrome (MERS-CoV) in 2012 [2], and Ebola Virus Disease (Ebolavirus) in 2014 [3]. In late 2019, a novel virus, SARS-CoV-2, emerged in Wuhan, in China's Hubei province (although the exact origin of the SARS-CoV-2 outbreak remains unknown) [4]. SARS-CoV-2 can lead to the coronavirus disease COVID-19 (as named by the World Health Organization on 11 February 2020) which has symptoms ranging from a cough or fever, to more severe presentations such as pneumonia and respiratory stress, which may result in death. Since SARS-CoV-2 first emerged, rapid human-to-human transmission of the virus has occurred around the world. International researchers have focused considerable effort on understanding the epidemiology, clinical features, transmission patterns, and management of the COVID-19 outbreak [5].

Based on the emerging evidence, many important, urgent, and unprecedented public health measures have been implemented around the world to reduce the risk of spread. These non-pharmaceutical measures have included restrictions on travel; school closures; non-essential business closures; physical distancing; the shielding of older people and those with pre-existing conditions; self or managed isolation and quarantine, respectively, of cases and close contacts[1]; and phased lockdown-type restrictions that substantially limit contacts outside of the home for repeated periods; as well as border controls [5-7]. Varying intensities and combinations of these non-pharmaceutical control measures continue to be implemented worldwide, based on current risk assessments. However, the implementation of these measures is not without risk. COVID-19, and the necessary response, has caused widespread and ongoing psychosocial impacts by causing significant economic burden and financial losses [8].

Border controls including a system of Managed Isolation and Quarantine (MIQ) have been implemented in Aotearoa New Zealand to manage returnees and prevent infectious cases of COVID-19 from entering the community. Staying in MIQ has been a legal requirement for incoming travellers since June 2020. The MIQ facilities (also referred to interchangeably in this report as MIQF) are designated hotels, staffed by a team made up of health professionals, and hotel and government personnel. Returnees must complete at least 14 days in MIQ, with rare exceptions for those travelling under quarantine-free travel [9]. A COVID-19 testing regime is in place for returnees in MIQ.

To date, little or no research has been applied to understanding any work-related wellbeing impacts for individual MIQF workers, their whānau, and their communities, as well as any implications for life outside-of-work. The majority of the available literature is focused on healthcare and other front-line workers' experiences within in-patient contexts, for other viral diseases (although the COVID-19 literature is emerging). These diseases all differ in their transmission characteristics and in the severity of the resultant illness. Despite these differences, previous epidemics and settings share many common elements, and many of the studies propose strategies that might be applied to an MIQF context. Consideration should be given to the breadth of the different contexts when drawing inferences about the applicability of these findings to the specific COVID-19 MIQF system in New Zealand.

In a high-stress situation, such as a pandemic response, distorted disease perception, misinformation, and fear can trigger reactions from individuals and groups that can disproportionately affect front-line workers (and their significant others) and lead to negative psychosocial outcomes. For example, stigma[2] [10-12] and discrimination [13] directed towards front-line healthcare workers has been well documented across several previous viral epidemics including HIV, EBOLA, MERS, SARS, and currently COVID-19 [14-20]. Stigma

[1] Quarantine normally refers to people who are avoiding contact with others because they may have been exposed to COVID-19. Similarly, isolation would normally refer to people who are avoiding contact with others because they themselves have COVID-19. The Ministry of Health has elected to use the opposite (and incorrect) terms for managed isolation facilities – in those hotels, "isolation" is used for asymptomatic guests, and guests are placed in the "quarantine" wing or facility if they become symptomatic or test positive for COVID-19.

[2] Stigma links a person to an undesirable stereotype and can result in disapproval, rejection, exclusion, and discrimination (Link, 2001). Stigma deprives a person from the full acceptance of the society in which they live (Goffman, 2009, p.3).

and discrimination directed towards front-line workers have been shown to be strongly associated with low staff motivation, poor staff retention, low morale, reduced psychological wellbeing, and in some cases mental health disorders such as anxiety and depression [16,21-23] as well as higher morbidity rates overall [24,25]. These negative effects can be especially problematic if stigmatisation becomes internalised (when a person comes to believe assumptions and stereotypes and apply them to him- or herself) [26]. Other psychosocial effects can include a decrease in social prestige, fear of infection and of infecting others, fear of stigmatisation-by-association, feelings of being devalued, work-related burnout [27], and reduced self-esteem [28]. Front-line workers may also experience 'role strain' as they consider their duties to the public versus their personal safety [29]. In a recent systematic review of the psychological effects of emerging viral outbreaks, Kisely et al. (2020) found evidence of a dose-response relationship – whereby the greater the perceived potential for infection, the greater the psychological effects on workers.

The origins and nature of these psychological effects have been outlined in a number of reviews and qualitative studies. Broadly, the reported psychological effects tend to align with one of two main types or sources: (1) effects that are *socially conferred* (i.e., because of others' behaviours), such as rejection, exclusion, and discrimination, and (2) effects that are *directly conferred* (i.e., because of one's own response to a situation or environment), such as stress, fear, and anxiety [30].

Previous research provides evidence that healthcare and other front-line workers may experience significant stress and distress as a consequence of their work [21]. Further, effective interventions are available to help mitigate the psychological distress experienced by front-line workers during an evolving pandemic. These interventions have previously been applied to a wide range of settings and epidemics/pandemics and therefore could be applicable to the current COVID-19 response.

Report focus and purpose

The Information Team at Community and Public Health (the public health division of the Canterbury District Health Board), was approached by the Canterbury Regional Isolation and Quarantine (C-RIQ) team who were concerned by incidents of stigma and discrimination being reported to them by staff working within the Canterbury Managed Isolation and Quarantine facilities (MIQF). In response to the request from the Canterbury Regional Isolation and Quarantine Team, a rapid literature review and a survey of Canterbury MIQF staff was undertaken in late 2020. It was agreed that the survey should explore staff wellbeing and experiences broadly.

The focus and main purpose of this report is to provide a greater understanding of any work-related wellbeing impacts for individual MIQF staff, their whānau, and their communities, as well as any implications for life outside-of-work. This report also aims to provide evidence-based guidance on practical strategies to mitigate these effects.

Scope

Understanding the wellbeing impacts of working in MIQ facilities in Canterbury is important in planning for an effective, sustainable border response, and for future epidemic/pandemic planning. This report brings together information from two main sources:

10. The views and experiences of MIQF workers were obtained via an on-line survey, using a non-representative sampling methodology. The survey included quantitative and qualitative questions, where respondents were provided with opportunities to make free-text comments on aspects of their experience as a front-line worker in an MIQF.
11. A rapid review of the literature was undertaken to identify relevant studies that examine the psychosocial effects of emerging, novel, virus outbreaks on healthcare and/or other front-line workers engaged in a major epidemic/pandemic response. Academic, peer-reviewed articles were sourced from major databases including MEDLINE, PsycInfo, and Google Scholar. The literature search was carried out between 10 and 14 December 2020.

Report structure

This report is organised in four main parts. Firstly, the report provides introductory information (above). Secondly, the report documents MIQF workers' experiences of working in MIQF, incorporating perspectives across a range of roles. Thirdly, recommendations are provided about ways to mitigate the identified issues, on the basis of the literature review findings and the Canterbury MIQF staff survey data. Finally, the report presents findings from the international literature, with respect to service-providers' experiences during previous EBOLA, MERS, and SARS epidemics, and to a limited extent, during the COVID-19 pandemic (Appendix A).

Te Tiriti o Waitangi and reducing inequalities

With respect to Māori, and the Crown's obligations as signatories to Te Tiriti o Waitangi, interventions and support programmes should enable whānau, hapū, iwi and individual Māori to exercise control over their own health and wellbeing [31]. It is therefore important that interventions and support programmes are readily accessible to all employee groups. As a starting point, decision makers should consider and minimise any factors that might limit uptake and usage of a service/intervention, including minimising the level of individual agency required to engage with a programme [32,33]. For example, interventions should ensure equal access to protective factors, including routine health services and appropriate accessible psychological support. Interventions should also insure that Māori receive the appropriate quality of care as compared to other groups, including the appropriate application of cultural concepts, norms, practices and language.

Survey report

Survey of Canterbury MIQF staff

Design

The views and experiences of MIQF workers were obtained via an on-line survey (using the SurveyMonkey platform), using a non-representative sampling methodology. An email invitation and survey link were emailed to staff in mid-December 2020 by the C-RIQ lead for each employment group. A reminder email was sent to staff on 6 January and the survey was subsequently closed on 11 January 2021.

The survey questionnaire was drafted by the project team, guided by the literature, and the draft was peer reviewed by a public health specialist, and further refined using an iterative process. The survey was composed of 27 items, or questions, mostly presented as statements using 5-point 'strength-of-agreement' Likert scaling – *Strongly disagree* to *Strongly agree* (Appendix B). Within these 27 items, respondents were provided with eight opportunities to make free-text comments on aspects of their experience as a front-line worker in an MIQF. Where free-text responses were provided they were analysed using a process of coding and grouping which highlighted key themes. Any identifying information was excluded from this process.

Ethics

The survey was assessed against the criteria for ethical review by a Health and Disability Ethics Committee (HDEC). As the survey was not requesting any personal health or other identifying information from respondents, it was determined that the survey was not within the scope of HDEC review. Respondents were considered to have offered their consent through their participation, noting that completion of the survey was optional, respondents were assured of anonymity and were able to skip questions if they wished and to opt out of the survey at any point.

Limitations

This study/report has a number of limitations. Firstly, the survey findings are limited to individuals working in MIQ facilities in Canterbury, New Zealand who responded to the survey. The sample is not representative, and respondents likely varied in their motivation to complete the survey. There is a possibility that important differences may exist between those who chose to provide feedback and those who did not. Therefore, despite the large number of total respondents, the views described here do not necessarily reflect the views of all MIQF workers in Canterbury. Further, the survey was cross-sectional, therefore the findings only present a snapshot in time, and responses may have been subject to recall and other biases. Finally, the findings may not be generalisable to MIQ facilities or MIQ workers in other regions, as substantial differences in the circumstances and experiences of MIQF workers in different locations may exist.

Respondent demographics

Three hundred and fifty-six MIQ staff responded to the survey with a completion rate of 86 percent (i.e., not all respondents completed the survey in its entirety). On Monday 4 January 2021, the total workforce pool was reported by the C-RIQ as being 808 persons. Given that some workers may have been rostered off over this time, been deployed elsewhere, or may not have received the email invitation, this provides an estimated response rate of 44 percent.

Of the 353 responding to the question about gender, 38.5 percent identified as male, 61 percent as female, and 0.5 percent as gender diverse. Survey respondents were invited to answer the Statistics New Zealand ethnicity question (as used in the New Zealand census 2006, 2013 & 2018) which asks respondents to select all those ethnic groups to which they belong. The majority of respondents identified as New Zealand European (72.5%), 9 percent identified as New Zealand Māori, 1 percent as Pacific Peoples, 21 percent as Asian, and 4.5 percent as 'Other' (Please note percentages do not total to 100 as respondents were able to select as many categories as necessary).

Thirty percent of respondents identified as being in the 20 to 29 year age band and just over 20 percent in the 30 to 39 year age band. Some 38 percent identified as being in the 40 to 49 or 50 to 59 year age bands with smaller proportions of respondents reporting that they were less than 20 years of age, or 60 years of age or older (2.5% and 6.5%, respectively) (Figure 1).

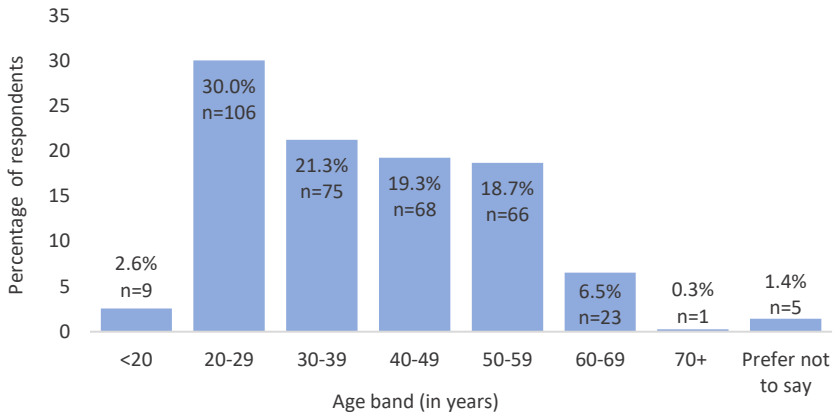


Figure 1: Age group of respondents (n=353)

Occupational demographics of respondents

Of the 356 respondents who answered this question, the largest percentage of respondents came from the Hotel Services occupational group (43.5%), followed by the Health and Wellbeing (26%) and Security and Compliance (21%) occupational groups (Figure 2). An informal review of the mid-January C-RIQ workforce overview report suggests that the number of survey responses received for each occupational group is proportionate to the size of each occupational group when compared to the current total Canterbury MIQF workforce pool.

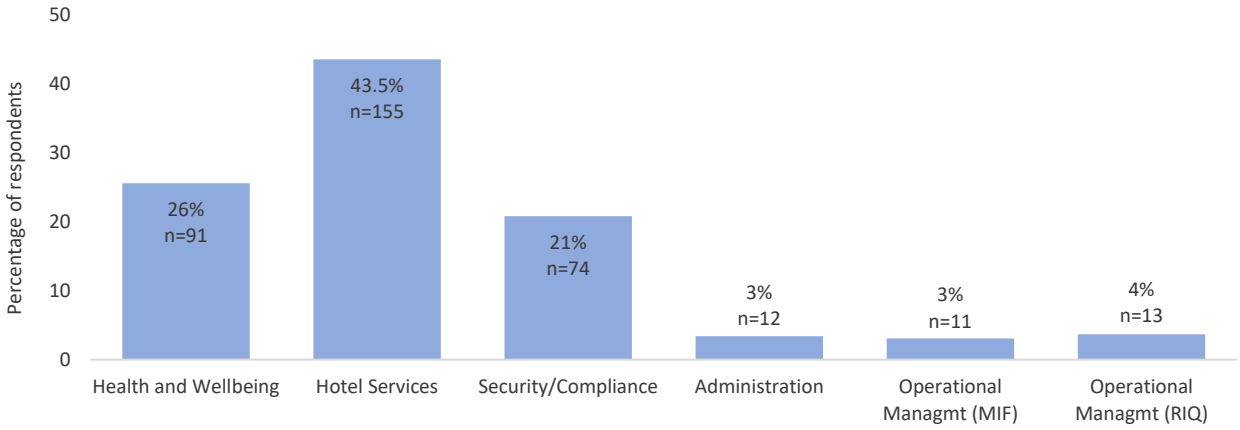


Figure 2: MIQF occupational group (n=356)

Forty-six percent of those responding to the question about how long they had been working in MIQ facilities reported that they had been working in the facilities for longer than six months. The next largest group (19%) reported that they had worked in the facilities for 5 - 6 months (Table 1).

Table 1: Time employed in MIQ facilities (n=354)

Answer Choices	Responses (%)	Response (number)
0 - 1 month	5%	16
1 - 2 months	11%	39
2 - 3 months	6%	20
3 - 4 months	8%	29
4 - 5 months	5%	19
5 - 6 months	19%	68
> 6 months	46%	163

Quantitative findings

A number of questions were focused on the respondents' experiences of employment and the degree to which they felt fulfilled and valued for the work they were doing. Survey respondents were asked to rate their level of agreement with eight statements (i.e., on a scale from *Strongly disagree* to *Strongly agree*). It is important to note that 87 percent of respondents agreed or strongly agreed (*Agree* 37%; *Strongly agree* 50%) with the statement, 'I am proud of the contribution I am making to New Zealand's COVID-19 response through my work in the MIQFs' (Figure 3).

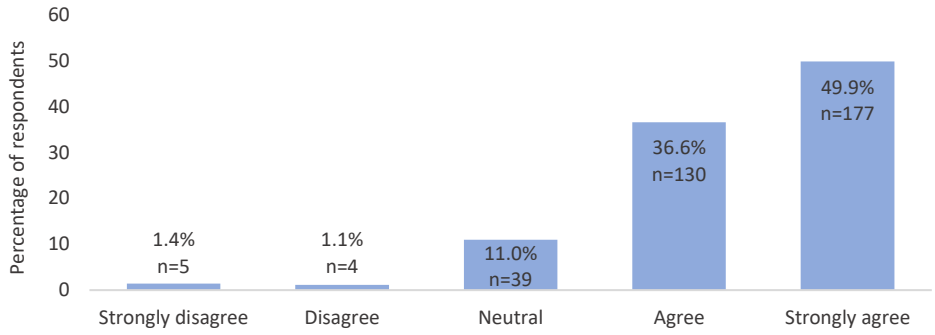


Figure 3: 'I am proud of the contribution I am making to the New Zealand's COVID-19 response through my work in the MIQFs (n= 356)

In addition, a high proportion of respondents (87%) also reported that they felt they contributed to the success of Canterbury's MIQFs (*Agree* 39%; *Strongly agree* 48%) (Figure 4). Low numbers of respondents selected a negative response (*Disagree* or *Strongly disagree*), or a neutral response, to these statements.

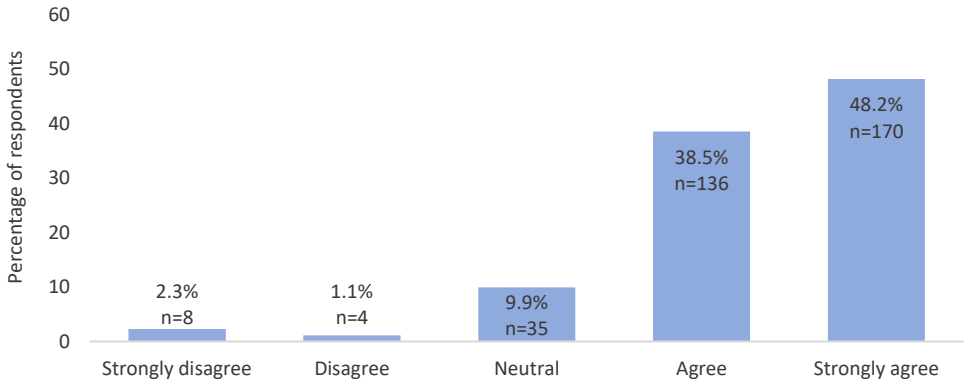


Figure 4: I feel I make a contribution to the success of Canterbury's Managed Isolation and Quarantine Facilities (n= 353)

On the scale *Strongly disagree* to *Strongly agree*, a neutral response may be selected by a respondent who does not have a strong opinion in either direction (i.e., negative or positive) about a given statement, or they may feel genuinely comfortable with the statement and select the neutral or 'middle-of-the-road' response as a result. It is of course possible that some respondents might feel uncertain or believe that they lack the necessary information to provide a more definite response and select the neutral response as a consequence.

Fifty-two percent of respondents either agreed or strongly agreed that their job in the MIQFs was fulfilling (*Agreed* 35.2%; *Strongly agreed* 16.3%). Twenty-nine percent of respondents selected a neutral response. Some 11 percent disagreed and a further 8 percent strongly disagreed (Figure 5).

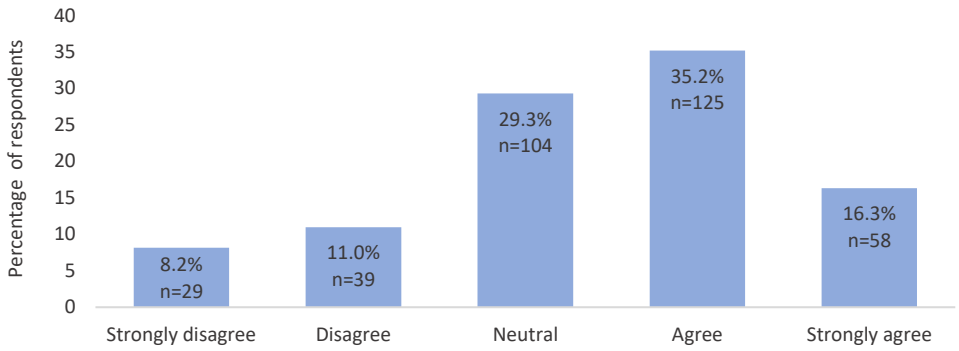


Figure 5: My job in the Managed Isolation and Quarantine Facilities is fulfilling (n=355)

Respondents were asked to indicate whether or not working at an MIQF positively affected their health and wellbeing. Only 8 percent of respondents strongly agreed that their day-to-day work positively affected them, with a further 25 percent agreeing that this was the case for them; 39 percent selected a neutral response. Eighteen percent of respondents disagreed, and 10 percent strongly disagreed that their work positively affected their health and wellbeing (Figure 6).

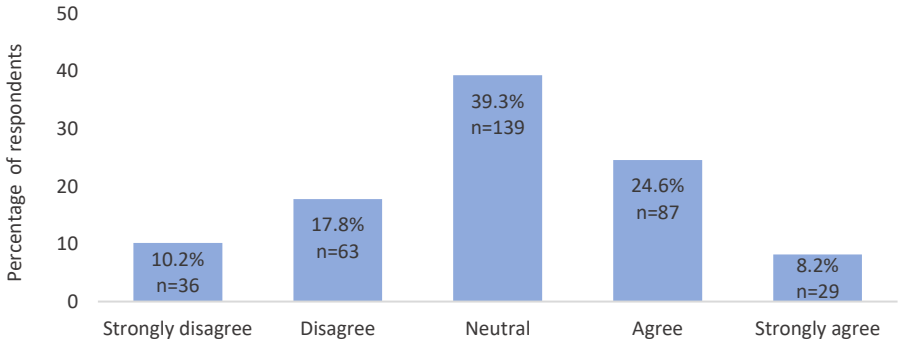


Figure 6: Day-to-day work at MIQFs positively affects my health and wellbeing (n=354)

Fifty-three percent of respondents agreed or strongly agreed that they felt valued as an employee by the management of the MIQFs (*Agree* 30.4%; *Strongly agree* 22.5%). Twenty-five percent selected a neutral response, whilst 13 percent disagreed and 8 percent strongly disagreed (Figure 7).

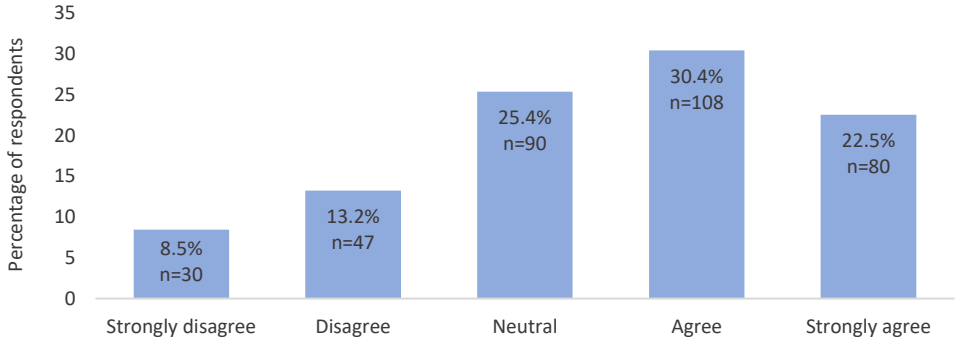


Figure 7: Valued as an employee by the management of the Managed Isolation and Quarantine Facilities (n=355)

Sixty-five percent of respondents agreed or strongly agreed that they felt valued by the MIQF guests (*Agree* 45%; *Strongly agree* 20%) and 26% offered a neutral response. Low numbers of respondents disagreed or strongly disagreed with this statement (Figure 8).

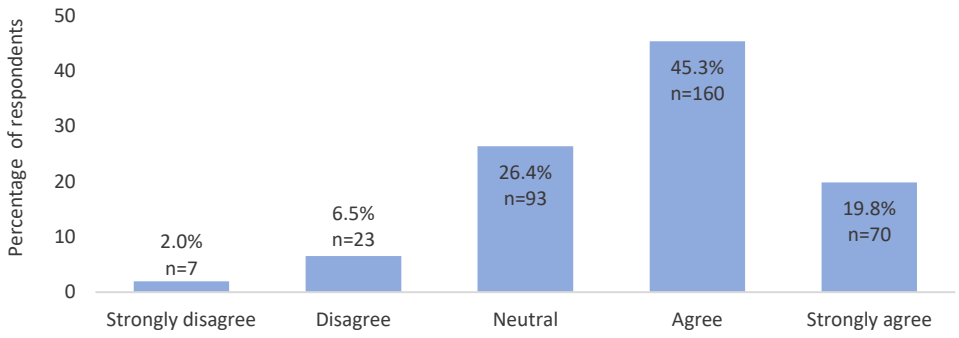


Figure 8: Valued by the guests who stay in the Managed Isolation and Quarantine Facilities (n=353)

Responding to a statement exploring whether workers felt valued by the wider community for the work they do in the MIQFs, a different spread of responses was evident. Thirty percent selected the neutral response, 19 percent agreed with the statement and only 7 percent strongly agreed. Contrasting with the responses to previous statements, 44 percent of respondents selected either the disagree or strongly disagree options (*Disagree* 24%; *Strongly disagree* 20%) (Figure 9).

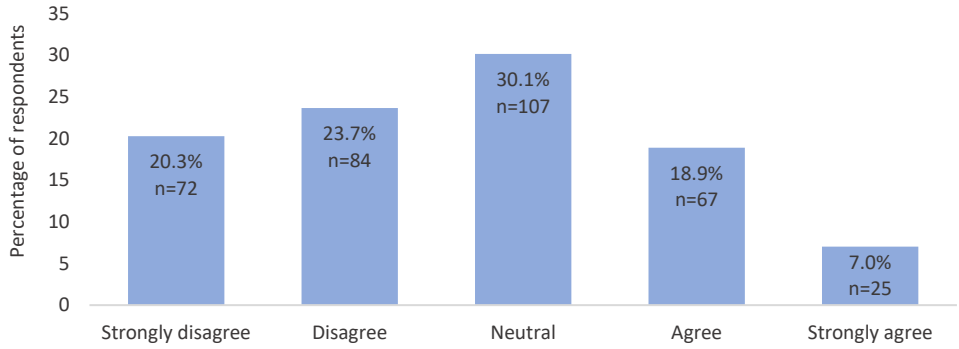


Figure 9: Valued by wider community for work I do in the Managed Isolation and Quarantine Facilities (n=355)

In order to explore whether or not the experiences of perceived discrimination being reported to the C-RIQ leadership team were being experienced widely, respondents were asked if they had been unfairly treated in a range of settings or scenarios, because they worked in MIQ facilities. Respondents were asked to select all those settings/scenarios that applied to them personally. Of the 348 who responded to this question, 147 respondents reported that they had not been unfairly treated due to their work in MIQFs. The remaining respondents collectively identified 536 instances or occasions when they had felt unfairly treated due to their place of work (Figure 10); this included some 31 respondents who selected the 'other' option in response to this question. Some 'other' responses included examples that fitted within existing categories listed in the question (e.g., 'not able to get GP appointment' and 'hairdresser'); some were more general comments that described the ongoing challenge of being an MIQF worker, and others outlined occasions when family members had, by association, experienced unfair treatment (e.g., home help would not attend a worker's mother, a spouse was asked to work from home etc.).

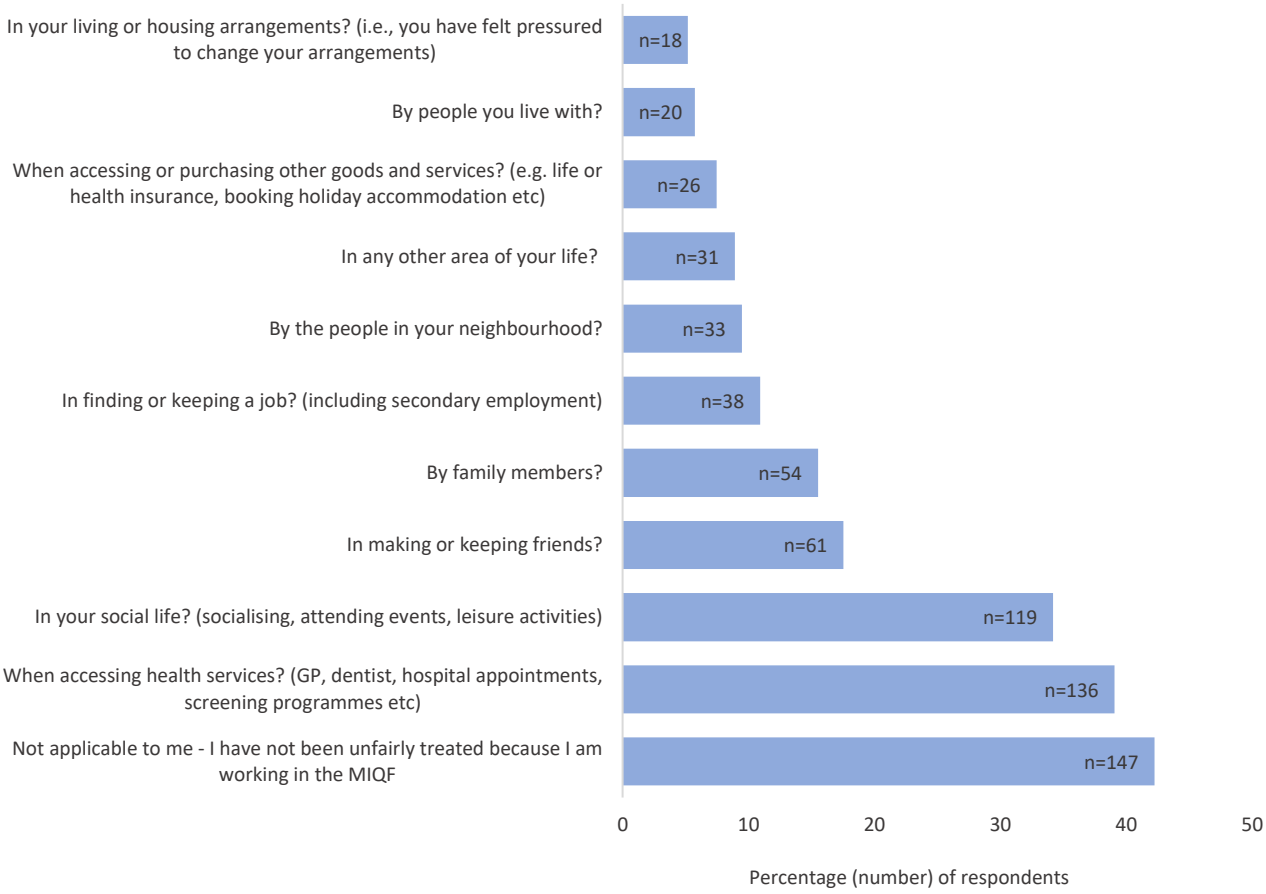


Figure 10: Unfair treatment in a range of non-work settings as reported by staff working in Canterbury MIQF- from least reported to most reported (n=348)

When this question was considered by MIQF role, a higher percentage of Health and Wellbeing worker respondents reported being unfairly treated than respondents from other employment groups (Figure 11).

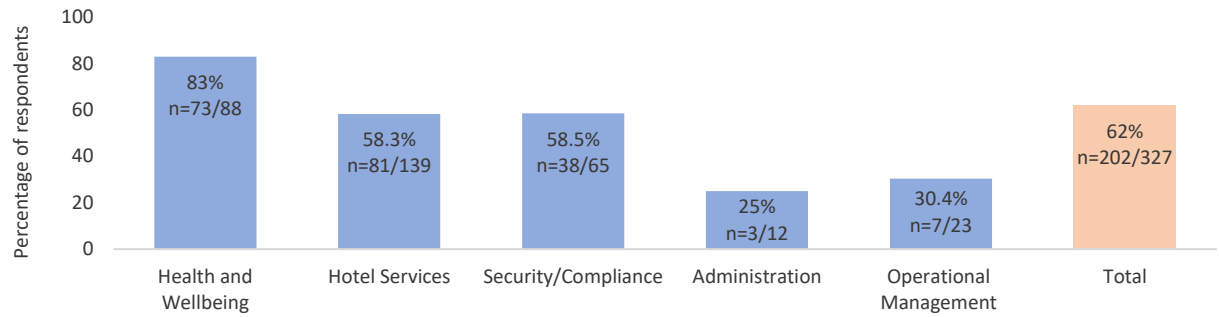


Figure 11: Unfair treatment in non-work situations as reported by staff working in Canterbury MIQFs, by role (number and percentage of each employment group, total n=202)

To explore whether workers felt more at risk, or more concerned about risk, depending on the makeup of their household, respondents were asked to identify who they lived with. Respondents were able to select all answer choices that applied to them (Table 2).

Table 2: Household make up of Canterbury MIQF workers (n=339)

Answer Choices	Responses (%)	Response (number)
None of the above - I live alone	10%	33
My wife, husband, partner or de facto	60%	203
My mother and/or father (aged under 60years)	5%	17
My mother and/or father (aged over 60years)	4%	12
My pre-school children/grandchildren	7%	25
My school-aged children/grandchildren	19%	63
My children/grandchildren who have left school	10%	33
My flatmate/s	18%	62
Other (please specify)	9%	32

Note: percentages do not total to 100 as respondents were able to select as many categories as necessary

Of the 32 responses in 'other', some aligned with answer choices provided for the question, e.g. adult children can be classified as 'my children/grandchildren who have left school'; 'partner' and 'flatmate' could each have been selected from options offered. It is possible that respondents did select the relevant answer options as well as commenting under 'other' to further qualify their response (e.g. 'adult children', 'live alone in barracks'), or to add another household family member type (e.g. sibling, niece) or wider family relationship (e.g. 'partner's brother and father').

Generally, different types of family members, beyond those already offered in the options offered, were the most common responses offered by respondents. Identifying a sibling or siblings as household members was the most common response noted of this type. Family members of a respondent's partner or their partner's siblings or other family members were also mentioned.

Following on from the question focused on household makeup, respondents were asked if any members of their household, family, whānau or friends had been unfairly treated because they were working in the MIQFs. Two hundred and fifty-six respondents (76%) replied, 'No' and 80 (24%) selected 'Yes' in response to this question. Those who selected 'Yes' in response to this question were invited to provide an example if they were willing to do so; 71 respondents went on to offer a free-text response which has been incorporated into the qualitative analysis which follows. When considered by MIQF role, a higher percentage of those from the Health and Wellbeing occupational group reported unfair treatment of their household members/family/whānau or friends compared with other occupational groups (Figure 12).

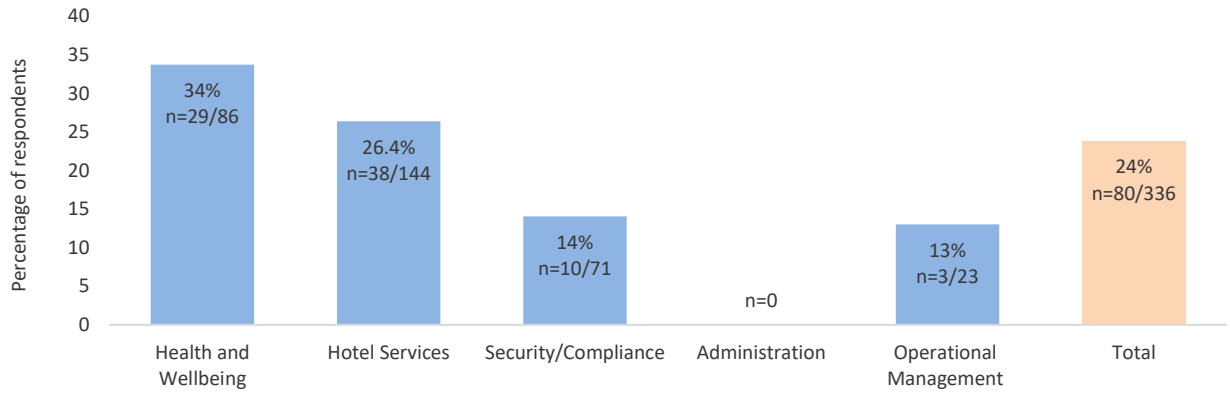


Figure 12: Unfair treatment experienced by household members/family/whānau or friends as reported by staff working in Canterbury MIQFs, by role (number and percentage of each employment group, total n=80)

Some questions explored respondents' confidence in the procedures in place in the MIQFs, together with their perceived risk in relation to COVID-19 infection and related issues.

Sixty-seven percent of respondents indicated they had a high level of confidence in the operating procedures in place at the MIQFs (*Agree* 42%; *Strongly agree* 25%). A further 19.5 percent provided a neutral response, whilst 10 percent disagreed, and 3 percent strongly disagreed (Figure 13).

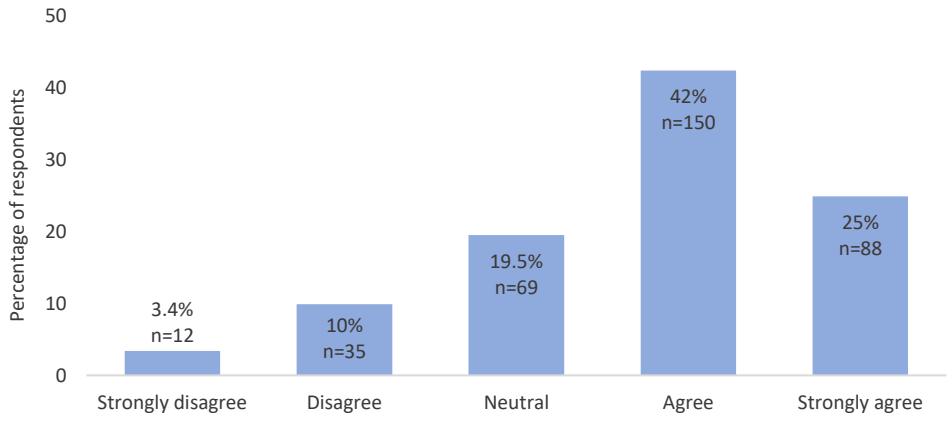


Figure 13: Confidence in operating procedures in place at the Managed Isolation and Quarantine Facilities (n= 354)

A majority of respondents (73%) also expressed a high degree of confidence in the infection prevention and control measures in place at the MIQFs (*Agree* 54.4%; *Strongly agree* 18.6%). A further 16 percent provided a neutral response, whilst 8 percent disagreed, and 3 percent strongly disagreed (Figure 14). Forty-nine respondents skipped this question which may indicate that some respondents did not feel qualified to comment on these measures.

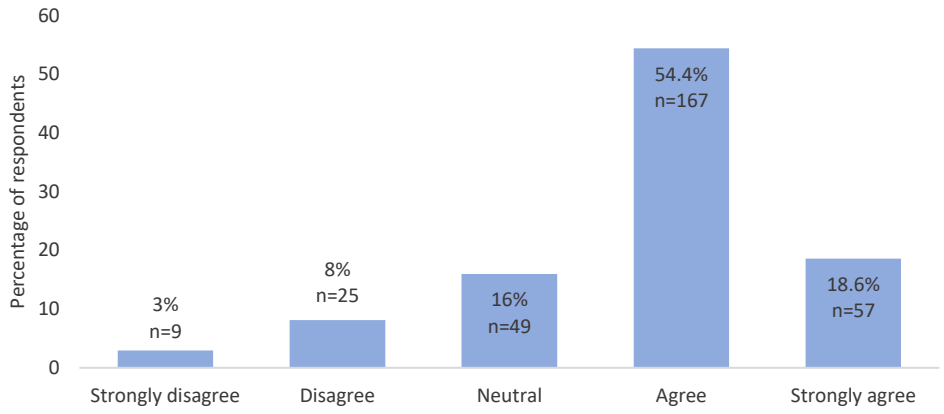


Figure 14: Confidence in infection prevention and control measures in place at Managed Isolation and Quarantine Facilities (n=307)

Most respondents (70%) indicated that they considered their chance of contracting SARS-CoV-2 at work to be unlikely (*Extremely unlikely* 33%, *Unlikely* 37%) (Figure 15).

When this question was considered by MIQF role, 60.8% of Health and Wellbeing workers selected unlikely or extremely unlikely in response to this question. Higher proportions of respondents from all other occupational groups selected unlikely or extremely unlikely in response to this question (Figure 16). This suggests that perceived risk is related to role but is also likely to be mediated by differing understandings of risk and the mitigations that are in place.

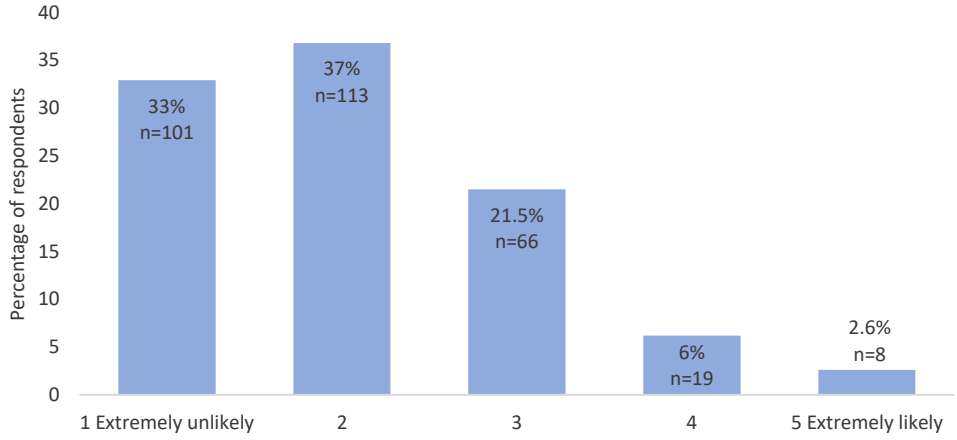


Figure 15: Perceived chance of becoming infected with SARS-CoV-2 at work (n=307)

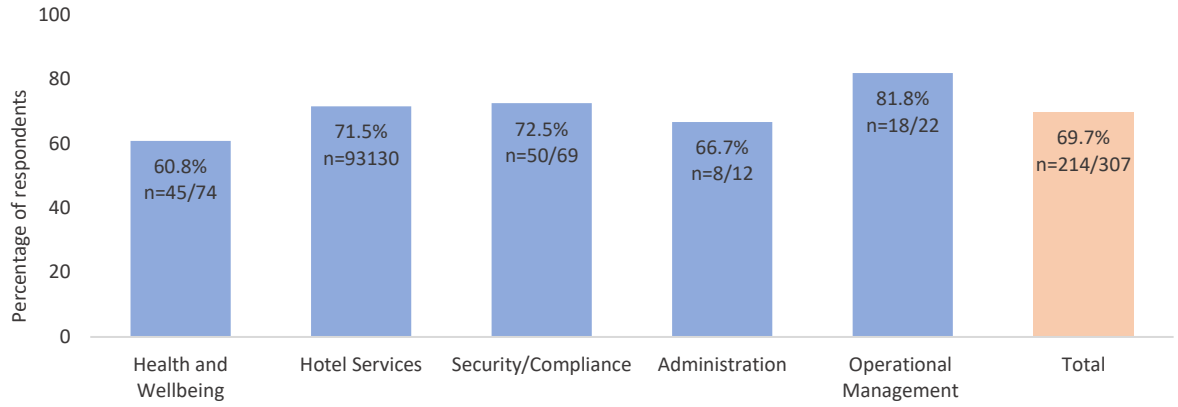


Figure 16: Perceived chance of SARS-CoV-2 infection at work being unlikely/extremely unlikely, by role (number and percentage of each employment group, total n=214)

A majority of those responding (64%) indicated that they were confident of being well supported by the staff and management of the MIQFs if they were to become infected with SARS-CoV-2 (*Agree* 35%; *Strongly agree* 29.3%). Twenty-four percent selected a neutral response, with only 8 percent disagreeing and 3.6 percent strongly disagreeing (Figure 17).

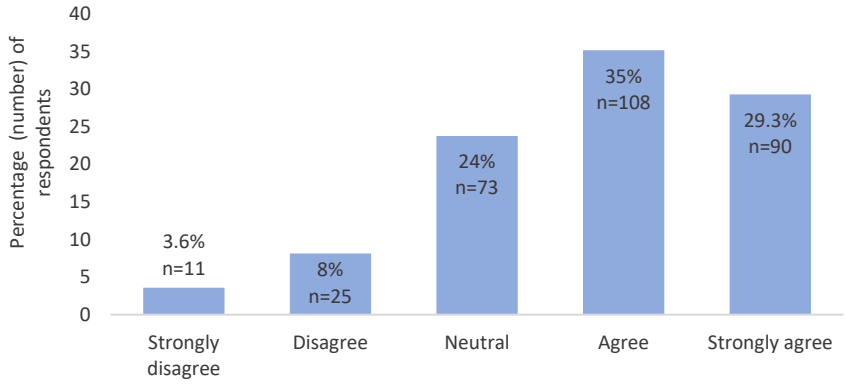


Figure 17: Confident would be well supported by MIQF staff and management if infected with SARS-CoV-2 (n=307)

Following the intense media scrutiny of two local MIQF workers who became cases (associated with the international mariners at the Sudima Hotel in late 2020), it was considered important to ask survey respondents about the degree of concern they may have about the potential for media or public scrutiny if they were to become infected with SARS-CoV-2. Sixty-seven percent of those who responded agreed (27.7%) or strongly agreed (39.7%) that they were concerned about this, with an additional 19 percent selecting the neutral response option (Figure 18).

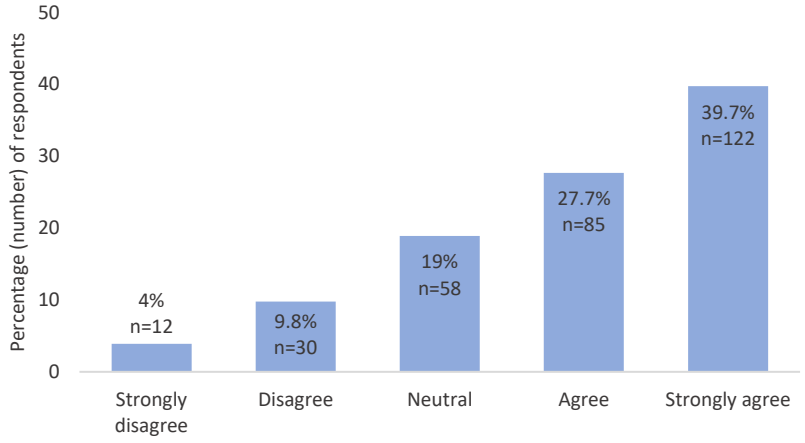


Figure 18: Concerned about media/public scrutiny that might occur if become infected with SARS-CoV-2 (n=307)

Summary of quantitative findings

Staff from all occupational groups working in Canterbury's MIQ facilities responded to the survey, with the vast majority (87%) of respondents agreeing or strongly agreeing that they were proud of the contribution they were making to New Zealand's COVID-19 response. A high proportion of respondents (87%) also reported that they felt they contributed to the success of Canterbury's MIQFs. Although 52 percent indicated that their job was fulfilling, a smaller proportion of respondents (33%) agreed or strongly agreed that their day-to-day work positively affected their health and wellbeing.

The majority of respondents agreed or strongly agreed (53%) that they felt valued as an employee by MIQF management and some 65 percent that they felt valued by MIQF guests. In contrast, 44 percent of respondents disagreed or strongly disagreed with the statement, 'I feel valued by the wider community for the work I do in the MIQFs', and only 7 percent strongly agreed with this statement.

When asked to identify any situations where they had experienced unfair treatment in non-work settings due to working in an MIQF, 147 of the 348 respondents indicated that they had not experienced any unfair treatment. Of those who indicated that they had experienced unfair treatment, accessing health services and challenges in negotiating social life were identified most often. Health and wellbeing staff were more likely to report experiences of unfair treatment both directed towards them personally and towards their household members/family/whānau or friends.

Sixty-seven percent of respondents indicated a high level of confidence in the operating procedures in place at the MIQFs and 73 percent of respondents expressed a high degree of confidence in the infection prevention and control measures. Most respondents (70%) indicated that they considered their chance of contracting SARS-CoV-2 at work to be unlikely or extremely unlikely; and when considered by occupational group, 61 percent of Health and Wellbeing staff indicated their chance of contracting SARS-CoV-2 to be unlikely or extremely unlikely.

The majority of respondents (64%) indicated they were confident of being well supported by the staff and management of the MIQFs if they did become infected with SARS-CoV-2, with only small numbers strongly disagreeing (3.6%) or disagreeing (8%). Respondents did indicate a degree of concern about the potential for media scrutiny if they did become infected with SARS-CoV-2 with 67 percent of respondents agreeing (27.7%) or strongly agreeing (39.7%) that they were concerned about this.

Quantitative survey findings indicate that many respondents:

- are proud of the contribution they are making to New Zealand's COVID-19 response,
- feel they are making a positive contribution to the success of Canterbury's MIQFs,
- feel valued as employees by the MIQF management,
- feel valued by MIQF guests,
- have a high level of confidence in the operating procedures and infection prevention and control measures in place,
- believe their chance of contracting SARS-CoV-2 at work to be low, and
- believe they would be well supported by staff and management of the MIQFs if they were to become infected with SARS-CoV-2.

Survey findings also indicate that respondents:

- do not feel valued by the wider community for the work they do in the MIQFs,
- are concerned about media scrutiny if they became infected with SARS-CoV-2, and that
- some respondents have experienced unfair treatment as a result of their MIQF employment, as have some respondents' household members/family/whānau and friends.

Qualitative findings

Being treated unfairly

Sources

Question 15, wording:

"Are you happy to tell us about a particular experience where you were treated unfairly because of the work you do in a Managed Isolation and Quarantine facility? If 'Yes', please enter your comment below. You do not need to identify yourself, your workplace, or anyone else by name"

Answered = 132; Skipped = 224; Evaluable responses[3] = 136 (includes 9 non-duplicate responses transferred from Q14.11)

Question 17, wording:

"Have any members of your household/family/whānau or friends been treated unfairly because you are working in the Managed Isolation and Quarantine Facilities? If 'Yes', and you are happy to do so, please explain what happened to your friend or household/family/whānau member.

Answered = 336; Skipped = 20 (Yes= 24%/No=76%); Evaluable responses = 63

Overall, 136 respondents provided evaluable responses to question 15 and 224 respondents skipped this question. A further 66 comments from *Question 17* were also included in the analysis. An overview of the comments and the main themes identified by staff in relation to their/household/family/whānau or friends' experiences of being treated unfairly are presented below, organised in descending order of the most frequently reported themes.

Generally, respondents to this question understood that the risk of infection posed to others is not zero, and they conveyed some degree of acceptance that the 'unfair' treatment that they had experienced was, to some degree, a by-product of the complexity of the situation, misinformation, fear, and human nature. However, respondents also expressed that these factors should not be dismissed as a given, and that there is substantial scope for improvement in many areas. Improving access to healthcare, improving public awareness and understanding of MIQF operations, and improving information and guidance to other organisations were all feasible actions that respondents identified.

With respect to the experiences of other household members/family/whānau or friends (i.e., those associated with the MIQF worker): approximately one-quarter of the respondents to *Question 17* reported that their household members/family/whānau or friends had encountered barriers to accessing health care; approximately 20 percent reported issues, confrontations, or barriers within their workplaces; approximately 20 percent reported avoidance behaviours by friends, family and the public; and a small number reported barriers to accessing aged residential care facilities, schools, courses, and other events or services. The responses to *Question 17* mostly map directly to the issues raised by MIQF workers themselves, albeit from the perspective of the 'significant other'. Therefore, to avoid duplication of the themes, a further detailed analysis of the household members/family/whānau or friends' data is not presented. Note: the analysis did not include any judgement or scoring of *fairness,* rather the analysis took each response at face value and applied the judgement or perceptions as described by the respondent.

Themes

Access to healthcare

Approximately half of the responses detailed experiences where respondents had encountered barriers to accessing healthcare or had encountered stigmatising responses from providers. These experiences were

[3] Five responses were not included in the analysis as they were all either substantially off topic or contained no additional information (e.g., yes, no, NA, ".", no comment). Nine responses were transferred from Q14.11 as they were non-duplicates and answered the same question under the response option Q14 "other".

most commonly associated with GP appointments or dental visits, either for themselves or when accompanying their children.[4]

Many of the respondents indicated that they were aware that accessing health care is an area where special arrangements may be required, and some respondents indicated that the provider's response was, to a degree, understandable, although respondents indicated that this does not lessen the barriers that they experience in practice. Further, despite some respondents having made prior arrangements with their healthcare providers, the providers were at times perceived as rude, avoidant, unprepared or '*panicked*' and did not appear to know how to deal with the situation. Respondents indicated that arrangements often changed when they presented and procedures were inconsistent from visit to visit. Many of these respondents indicated that they had simply been refused treatment on occasions, with examples given from across the health system, from primary care through to hospital services. Respondents also reported that they sometimes deferred seeking treatment as the process was too difficult.

> *'Asked not to attend dentist whilst working in MIQ'*
>
> *'I cannot access my GP, I feel like people think we have the plague'*
>
> *'… when going into a community laboratory for routine blood work ... I identified myself as a staff member of MIQF and requested a mask … staff disappeared and talked about me … and referring to me as 'what do we do with that'... not having processes in place to facilitate my bloods seems unbelievable'*

These data suggest varying understandings between healthcare providers and MIQF staff, with respect to organisations' and individuals' expectations, obligations, rules, and guidelines.

A limitation of this analysis is that the question of fairness cannot be fully addressed with these data, as respondents' experiences cannot be considered in relation to the specific context, such as or any rules and regulations that might have guided the providers' actions. Nevertheless, many respondents clearly experienced challenges in accessing health care.

Avoidance behaviours by friends, family and the public

Approximately half of the responses described instances of social avoidance and rejection, generally described as being based in fear and/or misinformation. Respondents described avoidance and social exclusion from family, friends, colleagues (not in MIQF), healthcare workers, other service providers, sports clubs, and members of the public. Many of the responses included examples of MIQF workers having been disinvited from events, weddings, family gatherings, work functions and other social interactions. Another common situation was respondents having to provide hosts with proof of a negative COVID-19 test result before they were permitted to attend gatherings.

Most respondents indicated that they understood the origins of these responses – and recognised and understood people's desire to avoid infection. Nevertheless, respondents commented that they were adversely affected by these experiences. Some respondents commented that improved public awareness of the actual risk posed by MIQF workers could help in reducing this source of generalised stigma and social isolation.

> *'When people find out I work in a managed isolation facility, their whole behaviour changes and they can't get away quick enough'*
>
> *'… a lot of stigma … In an instance, I need to cancel my daughter's birthday party because people don't want to come because I am working in MIQF'*

[4] These comments were most commonly made by Health & Wellbeing workers; however, similar comments were made by respondents from all employment groups.

Barriers to secondary employment, volunteering, and partner's employment

Some respondents to this question (approximately 15%) indicated that they had faced barriers to obtaining secondary employment or had been rostered off, stood down, or fired from secondary employment because of their MIQF work.[5] Some respondents (approximately 10%) reported that their partner's employment had also been affected; for example, the partner having to work from home when the MIQF worker's current facility had positive cases. A small number of respondents also reported that they had been excluded from their volunteering positions.

Accommodation barriers

A small proportion of the respondents reported that they had encountered rental accommodation issues, such as difficulty in securing rental accommodation or conflicts that had resulted in restrictions or relocations (approximately 5%). In some cases, flatmates moved out or requested the MIQF workers to move out of a flatting situation because of the potential risk of infection. In other cases, physical distancing and other restrictions were placed on the MIQF workers within the living spaces. In one case, the flatmates of an MIQF worker were not permitted to work in their normal work setting and were required to work from home for the duration of the MIQF worker's contract. In a small proportion of these cases, the respondents indicated that they had experienced substantial inconvenience, cost, and/or hardship as a result of these challenges.

Other generalised stigma/unfair treatment

Respondents also described examples where they perceived that stigma had influenced their day to day life, such as when buying insurance, their children not being able to attend extracurricular activities, other family members being blocked from their workplaces or clubs, or restricted access to day care facilities or school grounds.

Being treated positively

> ***Source***
>
> ***Question 18, wording:***
>
> "Have you been treated more positively in any situations because of the work you are doing in the Managed Isolation and Quarantine Facilities? If 'Yes', and you are happy to do so, please provide an example of a time when you were treated more positively because of the work you are doing in the Managed Isolation and Quarantine Facilities.
>
> Answered = 334; Skipped = 22; (Yes=16%/No=84%); Evaluable[6] free-text responses = 36

Overall, 16 percent (n=53) of the 344 respondents to *Question 18* answered that they had experienced a situation in which they were treated more positively because of the work they do in the Managed Isolation and Quarantine Facilities. Of those 53 respondents, 36 provided additional free-text responses that were able to be analysed.

Themes

Appreciation and gratitude

Most of the 36 responses described simple appreciation or gratitude from others, although this appreciation and gratitude mainly originated from within the MIQ environment rather than the wider community. Respondents indicated that some returnees genuinely appreciated the MIQ system and the care and attention that MIQF workers demonstrated in their various roles. Other respondents indicated that their employers/managers reinforced the value of their contribution to the border response, and that they personally appreciated their efforts. Approximately five percent of the respondents described

[5] Additional analysis determined that all the comments relating to secondary employment were made by non-Health and Wellbeing staff. Health and Wellbeing staff are contractually excluded from secondary employment, whereas other MIQF workers are not. The Health & Wellbeing staff did not indicate 'unfairness' with respect to secondary employment restrictions.

[6] The 5 responses that were not included in the analysis were either substantially off topic or contained no additional information (e.g., no, NA, no comment).

appreciation and gratitude from 'civilians', friends, or people/acquaintances generally, and a small number of respondents indicated that they had a supportive or affirming GP.

> *'When I explain to people where I work, they generally tell me it's very interesting and commend us (the team) on how we are doing a great job and how important the work is we do'*

Limiting activities outside of work

> ***Source***
> ***Question 23, wording:***
> *"Have you chosen not to do certain things outside of work hours because you are working in the Managed Isolation and Quarantine Facilities? If 'Yes', and you are happy to do so, please provide an example of something you are not currently doing outside of work hours because you are working at the Managed Isolation and Quarantine Facilities"*
> Answered = 307; Skipped = 49; Selected Yes = 141 (46%)/No = 166 (54%); Evaluable[7] free-text responses = 116

This survey question provided MIQF staff with an opportunity to highlight examples of any self-imposed restrictions or rules that they apply to their day-to-day life outside of work. Approximately half of the respondents (n=141, 46%) indicated that they sometimes choose to limit certain activities outside of work hours because of their MIQF role. Overall, 116 respondents provided comments that were able to be thematically analysed and 49 respondents skipped this question.

Theme

Self-managing according to possible risk

Many respondents described restricting activities across most aspects of their life. These restrictions included: not visiting the elderly and other vulnerable groups; not socialising with family and friends; not participating in sports; not attending the gym, clubs, church, or the movies; avoiding large gatherings; and avoiding close-contact service providers such as hairdressers, dentists, and healthcare providers. Most respondents described some form of personal system of rules that they used to match the possible risk of transmission at any given time, with the specific activities being considered.

Many of the respondents scheduled their wider social interactions around their COVID-19 test result cycles and/or whether there were known COVID-19 cases currently in the facilities in which they worked. The responses also described 'exposure hierarchies', where respondents would start to restrict exposure to certain groups of people depending on their own current risk/vulnerability assessment. For example, respondents often described avoiding elderly parents or the immunosuppressed all or most of the time, then extending this to family, friends, and close-contact service providers in times of potentially higher risk. Generally, the responders applied the principle of ‘low risk but not no risk’ and they tended to modify their social interactions accordingly. Many of the respondents described the rigid rules and routines that they had developed and applied to themselves and they indicated high levels of vigilance.

> *'I usually don’t leave home until at least 24hrs after my last swab has been sent off, which I do at the end of every run (ie my x3 12 hour shifts). Just in case there is a problem, I want to minimise risk of exposing anybody. What I really want to do is be free to go and do what I want on my first day off. This precautionary measure is something I self-impose'*

[7] The 25 responses that were not included in the analysis were all either substantially off topic or contained no additional information (e.g., yes, no, NA, ".", no comment).

'While I was working in a particular hotel with a large group of positive cases, I chose to self-isolate at home apart from work. I cancelled appointments, stayed away from family and friends'.

Key management strengths

Source
Question24, wording:
"What do you think the management of the Managed Isolation and Quarantine Facilities does well to assist you in your day-to-day work?"
Answered = 209; Skipped = 147; Evaluable[8] free-text responses = 185

In total 209 MIQF staff provided responses to this question (147 respondents skipped) and of the 209 responses, 185 comments were able to be thematically analysed.[5] Generally, respondents indicated that they felt well supported, in what was reported to be a complex and dynamic environment. However, some respondents noted variability in the quality of management between facilities.

Themes

Supportive environment

Overall, respondents to this question felt well supported within their MIQF working environments. Many respondents described their managers as kind and caring, and *'willing to defend'* MIQF workers against discrimination. Respondents also appreciated managers who were available and approachable as well as clear lines of authority. Respondents appreciated managers who employed a partnership approach. Overall, a majority of respondents reported one or more of these positive management characteristics, although, a small number of respondents described some variability in the quality of managers between different MIQF facilities. Some respondents reported having experienced managers who created a *'culture of frustration'* or a generally *'poor culture'*.

Good communication

Good communication from MIQF management was highly valued by respondents and was also seen as critical to the efficient and safe operation of MIQ. Good communication also adds to the supportive environment by creating a sense of reassurance and safety. Respondents also commented that good communication tends to reinforce the sense that staff are valued and worthy of being heard when difficulties or uncertainties arise.

Clear, simple systems

Clear, simple systems were also seen as essential to the efficient and safe operation of MIQ. Respondents understood that the border response is a complex and dynamic environment involving multiple agencies, and appreciated having clear and robust systems in place that define and simplify the operating procedures within the facilities. Many respondents viewed the standard operating procedures (SOPs) as supporting their role and supportive of their health and safety generally.

Training as needed

Many respondents also commented on the availability and value of in-service training. Participants commented that processes can change frequently and that the relevant training provided in response to these changes was critical to the performance of their roles. Some respondents commented that good communication, clear systems, and responsive training are the core features of a well-managed and effective MIQF working environment.

[8] The 24 responses that were not included in the analysis were all either substantially off topic or contained no additional information (e.g., yes, no, NA, ".", no comment).

Health checks, testing, and access to PPE

The daily health and wellbeing checks, and the weekly testing on site were appreciated by and reassuring for respondents. These help to reduce the levels of uncertainty and anxiety around the possibility of transmitting the virus to others in the community. As noted above, a number of respondents commented that they used the testing routines to schedule some of their out-of-work social activities. The health checks, testing, and unrestricted supply of PPE, all worked together to build staff confidence in infection control.

Suggested improvements to the management of MIQ facilities

> ***Source***
>
> ***Question 25, wording:***
> *"What could the management of the Managed Isolation and Quarantine Facilities do better to assist you in your day-to-day work?"*
> Answered = 214; Skipped = 142; Evaluable[5] free-text responses = 162

In total 214 MIQF staff provided responses to the question, 142 skipped this question, and of the 214 responses, 162 comments were able to be thematically analysed*. An overview of the comments and the main themes are presented below, with topics organised in descending order of frequency. The responses to this question formed three main themes: engagement and support, information systems, and standardisation. Other issues mentioned included remuneration, access to N95 respirators and other necessary clinical equipment, and some concern about the variation of rostering practices between agencies.

*Of the 52 responses that were not included in the analysis, almost all were affirmations or endorsements of the status quo, for example 'keep up the good work'. While the submission of these comments does convey meaning (they account for approximately one-quarter of the responses) they are mostly repetition or follow-on comments from the previous Question 24 and they do not directly address the question asked "what could the management of the Managed Isolation and Quarantine Facilities do better". Therefore, these responses are not re-analysed here.

Themes

More supportive and engaged management

Just over 20 percent of the responses related to managerial support and engagement. Most of the comments relating to support were non-specific – respondents simply wanted more day-to-day support. However, a small number of respondents listed aspects of support that they thought could be improved including: better communication, more signs of appreciation, greater attention to workers' needs, a greater focus on mental health, and more *'visible leadership'.* Respondents also identified engagement as an area for improvement, including: more opportunities to *'meet-and-greet',* more face-to-face interactions, asking for feedback on operational matters, regular informal *'check-ins'* with staff, and more active listening when staff have concerns.

Improved information systems

Twenty percent of the responses related to information systems including the accessibility of standard operating procedures (SOPs) and their updates and better access to useful real-time information, such as the movements of guests between facilities and any information that may have changed prior to the beginning of a shift (i.e., a better handover system). One common comment relating to SOPs was that staff generally do not have time to read and digest long documents and interpret the critical changes, and that concise bulletins or summaries would be helpful.

'For our safety it would be great if there was some sort of quick reference guide outlining changes as they are made, and to have these guides readily available to us'

'Communicate better - does not mean more ... this likely means less and more relevant instead of through multi page documents'

Improved standardisation

Approximately 17 percent of the responses related to either the standardisation of rules, procedures, and duties or descriptions of inconsistencies in how the different agencies interact. Many of the respondents acknowledged that efforts have been made to reduce variability, and that there would always be slight differences, but respondents indicated that moving between facilities was not seamless. Information gaps sometimes made the transition difficult, for example if an adequate handover was not provided.

Other

A number of respondents raised the issue of remuneration. This appeared to be most relevant for those hotel staff who have now become MIQF staff, without receiving additional remuneration. These respondents argued that they are not being fairly compensated for the additional risk associated with the MIQF work. A small number of respondents indicated poor access to N95 masks, and in some cases, to other essential clinical equipment. Finally, several respondents commented on a challenge posed by staff rostering practices not meshing across all agencies.

Support from others?

> ***Source***
> ***Question 26, wording:***
> *"What, if anything, do you think others (i.e., anyone such as the public, officials involved with the COVID-19 response, the media etc) could do to support you in the work you are doing?"*
> Answered = 196; Skipped = 160; Evaluable[6] free-text responses = 164

This question asked MIQF workers to describe what they thought others (such as the public, officials involved with the COVID-19 response, the media) could do to assist them in their day-to-day work. In total 214 MIQF staff provided responses to this question and 142 respondents skipped this question. Of the 214 responses, 164 comments were able to be thematically analysed.[9] Two-thirds of the comments either related to the style of reporting by the mainstream media (perceived as generally negative) or described the need for a positively-framed government-led media campaign. While these two themes are related, respondents clearly described a lack of educational and positive messaging from health authorities/government, and separately, a large amount of negative media reporting. Other respondents suggested the need for more support, understanding, and respect from officials, the need for hazard pay, and the need for improved communication and collaboration between the different agencies.

Themes

Mainstream media reporting: quality, style and framing

The majority of comments described the way in which media reports about MIQ facilities and MIQF staff were framed. Most of the respondents indicated that they commonly see the media reports as overly negative or that they demonstrate a lack of understanding of MIQ and the work that MIQF staff undertake.

'Be more positive about what we do - there is always such a negative vibe about "us"'

[9] The 32 responses that were not included in the analysis were all either substantially off topic or contained no addition information (e.g., yes, no, NA, ".", no comment).

Respondents also commented that the media tends to blame MIQF staff for 'breaches' and 'failures' and stories are often overly negative and produce fear, stigma and discrimination; all of which have a *"hugely negative impact on mental health"*.

> *'Media need to hear the nurses' experiences and the impact working in MIQF has on our family, our health and wellbeing and how we are treated in society'*

Media campaign

Approximately one-third of the respondents to this question expressed the view that the public is relatively uninformed about what happens in an MIQ facility, including the procedures and precautions taken to ensure the safety of guests and staff. Respondents suggested that a Government-led media campaign could be used to educate the general public (and the media) and that such a campaign could greatly support MIQF staff and their families by reducing misinformation, stigma and discrimination. Many respondents expressed concern that government agencies have not been pro-active in communicating the low levels of objective risk that off-duty MIQF workers pose to the community. Respondents acknowledge that the risk is not zero. However, they considered that the risk level portrayed in the media is *'overblown'* and that this issue has not been adequately addressed by health officials. Many respondents expressed concern that the public have not been provided with objective risk assessment information.

Support, understanding, and respect from officials

Approximately 15 percent of the responses[10] to this question related to support, understanding and respect from managers and officials generally (often specified as upper management or the Ministry of Health/Government). Most of the comments were non-specific, respondents simply wanted more recognition, support, and signs of appreciation for the *'efforts and sacrifices'* made and for the day-to-day work that they do in MIQF. Respondents also indicated that they would like officials to engage more with MIQF staff and demonstrate more active listening when staff have concerns.

Hazard pay

Ten percent of the respondents to this question included comments relating to remuneration and hazard pay. Most of these comments were made by hotel staff who did not feel that they were being fairly compensated for the additional risk that their new duties and environment involve. Hotel workers described the situation whereby their place of work has changed from a pre-COVID environment to an MIQF but where their remuneration has not changed. Some respondents commented that this was unfair as their duties had generally become more complex and strenuous.

[10] Here, some respondents commented on a number of related issues/challenges within this theme.

Anything else?

> ***Source***
>
> ***Question 27, wording:***
>
> *" Is there anything else it is important for us to know about your experience of working in the Managed Isolation and Quarantine Facilities"*
>
> Answered = 173; Skipped = 181; Evaluable[8] free-text responses = 134

This question asked MIQF staff to describe any other important aspects of their overall experience of working in the Managed Isolation and Quarantine Facilities. In total 173 MIQF workers provided responses to the question, 181 skipped this question. Of the 173 responses, 134 comments were able to be thematically analysed.[11] Largely, the responses to this question reinforced several of the themes already described. Broadly, 80 percent of the responses to this question suggested improvements and refinements to aspects of the MIQ system, while approximately 20 percent of the responses reinforced the status quo and/or described positive and rewarding experiences within MIQFs.[12] Within the responses, there are some reports of dissatisfaction and varying levels of upset. However, there are also reports of high job satisfaction, pleasant experiences, accounts of respect and kindness, and experiences that have enhanced some workers' life skills. These data indicate that individuals' experiences and/or perceptions differ widely across many aspects of MIQF employment.

Themes (affirmative)

A job well done

Approximately 20 respondents to this question provided examples of highly positive experiences as MIQF employees. Clearly, some employees have experienced their time as MIQF workers as very positive, rewarding, and enriching. Some of the responses detailed positive encounters with guests, being treated with respect and gratitude by managers, and learning professionally. One respondent indicated that they considered it an honour to work in MIQF, and another *'the highlight of my career'*.

> *'Overall, I have had a very pleasant experience whilst working among the isolation facilities. I am treated with respect and dignity by other staff, I am also treated with respect by all of the guests among the facilities who express their gratitude for all that we do to help keep them safe. We develop a special relationship with the guests during our routine check on their well-being …'*

> *'Overall, I have enjoyed it, especially the interaction with guests. I have been proud to say I work in MIFs'*

Themes (adverse)

Remuneration

Approximately one-third of the responses to this question related to remuneration and/or the absence of hazard pay. Most of these comments were made by staff who reported being on the minimum wage and who reported feeling that they are not being fairly compensated for the additional risk that their new duties involve. A previously noted, respondents typically described the situation whereby their place of work had changed from a 'normal hotel' to become an MIQF and their remuneration had not changed to reflect the increasingly complex situation.

> *'I am truly grateful to have kept work in these trying times. However, I find it somewhat exploitatory that staff like myself from a hospitality background are*

11 The 47 responses that were not included in the analysis were all either substantially off topic or contained no additional information (e.g., yes, no, NA, ".", no comment).

12 The proportions of the total comments (indicated for each theme) do not equal 100% as many respondents made several suggestions and/or affirmations within their overall response.

being expected to work in a potentially hazardous environment, follow strict safety measures and get regularly tested whilst receiving minimum wage'

'It is such a strenuous environment and when it feels intolerable people don't seem to care and treat it as 'normal work conditions' when it is not'

Some respondents described feeling undervalued and being *'taken advantage of',* and *'unappreciated*'. Respondents also commented that their work now required them to engage with so many different agencies - health, NZDF, Police, security – and that this added further complexity to their work. Overall, this group of respondents described feeling undervalued, especially as their work has intensified over time.

Consistency of management and processes

Approximately 20 percent of the responses to this question noted inconsistencies in managers' style and effectiveness, and variations in operational processes across the different MIQFs. However, respondents often indicated that their comments were specific to only one or two of the facilities in which they had worked. Clear, simple, systems were seen as essential to the efficient and safe operation of MIQ and respondents indicated that inconsistencies were experienced as frustrating, and in some cases were perceived as 'unsafe'. Respondents acknowledged that the border response is a complex and dynamic environment. However, they indicated that there is substantial scope to improve inter-agency collaboration and team work. Some respondents viewed the standard operating procedures (SOPs) as essential to their role but noted unexplained differences in interpretation and implementation. Generally, respondents indicated that individual managers could substantially influence the working environment, either positively or negatively, despite the existence of robust protocols.

Stigma/public image

Approximately 15 percent of respondents to this question indicated that they had experienced stigmatisation and/or discrimination because of their MIQF work. Most commonly, respondents described instances of social avoidance, rejection, and exclusion from extended family, friends, colleagues (not in MIQF), healthcare staff, and other service providers (also see Question 15). In some cases, partners and other family members also experienced exclusion, such as from sports clubs and other recreational activities. Respondents often described a tension between the desire to be free and open about their work and the desire or need to avoid stressful and uncomfortable situations.

'I want to be proud of my job. This is my first nursing job and I want to be able to tell people, not to be condemned for the work that I do. I feel that I have to hide my position from so many people, businesses and other facilities in the community for fear of being rejected simply because of where I work'

Respondents indicated that the stigma of working in MIQ facilities is making it difficult to retain staff and that this stigma needs to change to ensure the long-term sustainability of MIQ. Some respondents indicated that team members' mental health and wellbeing is suffering, and that more pro-active efforts are needed.

Better communication/information systems

Approximately 10 percent of the responses to this question related to the accessibility, consistency, and timeliness of information, and the need for more advanced or integrated information systems. Respondents described difficulties with keeping up-to-date with the rapidly changing protocols and procedures. Respondents also commented that better two-way communication would help to create the sense that staff are valued and are worthy of being heard when difficulties or uncertainties arise.

Overall summary of qualitative survey findings

The qualitative survey data suggest high levels of job satisfaction for many workers, with accounts of respect and kindness, pleasant experiences, and experiences that have enhanced some workers' life skills. However, the findings also indicate dissatisfaction and varying levels of distress for some workers. The main themes identified are summarised below, grouped into two broad categories: 1) *appreciated or helpful* and 2) *issues or concerns*.

Appreciated or helpful

Many respondents reported generally positive experiences as an MIQF worker. These respondents described aspects of the MIQF environment and/or management supports that were appreciated or helpful and contributed to their job satisfaction and wellbeing. These respondents indicated that they understood the purpose of their work and the inherent challenges. Generally, these respondents appreciated the positives and tended to accept the less desirable aspects of MIQF work.

- Supportive environment: workers are well-supported within their MIQF working environments; managers are kind and caring and *'willing to defend'* MIQF workers against discrimination; managers employ a partnership approach.
- Good communication is highly valued: communication from MIQF management is highly valued and is seen as critical to the efficient and safe operation of MIQ.
- Clear simple systems: clear and robust systems are in place in MIQFs and these are appreciated and essential, as the border response is complex and dynamic, and MIQ involves multiple agencies.
- Training: comprehensive training is available, as needed.
- Health protection: health checks, testing, and access to PPE are reassuring (and essential).
- High levels of job satisfaction: positive encounters with guests, being treated with respect and gratitude, learning professionally, and making an important contribution to New Zealand's COVID-19 response.

Issues or concerns

Some respondents provided critiques of the working environment, systems, procedures, coordination, and supports, and some respondents made suggestions for improvements. In addition, respondents indicated that MIQF work brings with it a set of role-related burdens that are challenging for many workers – not necessarily the work itself, but being an MIQF worker. Some respondents reported that they have no issues at all with the work that they do or with the MIQ environment as a workplace, but provided examples of the limitations, burdens, and inconveniences that they encounter – because of others' perceptions – and how these burdens affect their personal lives and their interactions with their community. The key themes describing issues and concerns about aspects of MIQF work (or being an MIQF worker) are listed below.

- Stigma/public image: many respondents described instances of social avoidance, rejection, and exclusion from extended family, friends, colleagues (not in MIQF), healthcare staff, and other service providers.
- The Media: many respondents expressed concern about the negative framing of some media reports about MIQ facilities and MIQF staff.
- Media campaign: some respondents expressed the view that the New Zealand public is relatively uninformed about the complexities of the MIQ system and that a government-led media campaign could be used to educate the public and thereby reduce misinformation and the stigma and discrimination commonly directed towards MIQF workers.
- Access to healthcare: many respondents detailed experiences where they had encountered barriers to accessing healthcare or had encountered stigmatising responses from healthcare providers (this was a strong theme that was expressed across a number of questions in the survey).
- Impacts on personal life: many respondents described restricting activities across most domains of life, including: not visiting the elderly and other vulnerable groups; not socialising with family and

friends; not participating in sports; not attending the gym, clubs, church, or the movies; avoiding large gatherings; and avoiding close-contact service providers such as hairdressers, dentists, and healthcare providers. Respondents also described situations where they needed to provide hosts with proof of negative COVID-19 test results before they were permitted to attend gatherings or events.

- Support and engagement from management and officials: some respondents indicated that they looked for better communication from managers and officials, more signs of appreciation, more time spent paying attention to workers' needs, and a greater focus on mental health.
- Standardisation: some respondents looked for greater standardisation of rules, procedures, and duties, and for more consistency in how the different agencies interact.
- Information systems: some respondents reported challenges in the accessibility, consistency, and timeliness of information and indicated the need for more advanced or integrated information systems.
- Remuneration and barriers to secondary employment: some respondents commented on the difficulty of the work with respect to their remuneration, as well as the absence of hazard pay. Some respondents reported other financial impacts such as being blocked from secondary employment (where no contractual barrier applied).

Conclusions

The information included in this survey report provides insights into the day-to-day experiences of MIQF workers in Canterbury, including their role-related experiences and the implications that their employment has had on their interactions with whānau, service providers, and their wider communities. The survey explored staff wellbeing and experiences broadly, rather than seeking only to document examples of stressors or unfair treatment that might be associated with working in an MIQF. This approach has provided the opportunity for respondents to offer balanced accounts of their experiences.

The majority of respondents reported being proud of their contribution to New Zealand's COVID-19 response and felt they were making a positive contribution to Canterbury's MIQFs. They felt valued as employees by the MIQF management and valued by the guests staying in the MIQFs. Some respondents described high levels of job satisfaction and reported being treated with respect, gratitude and kindness.

It is pleasing to note the high level of confidence in the operating procedures and infection prevention and control measures indicated by respondents, together with the belief that their chance of catching SARS-CoV-2 at work is low. Respondents also indicated that they had confidence in the way in which the staff and management of the MIQFs would support them if they were to become infected.

In contrast to these positive findings, respondents reported not feeling valued by the wider community for the work they do at the MIQFs and highlighted concerns regarding the potential for media scrutiny if they contracted SARS-CoV-2.

Some respondents did report what they considered to be unfair treatment because of their work in MIQFs. They described experiencing avoidance behaviours by friends, family and members of the public. Some had experienced problems accessing healthcare, and in taking part in their usual social and sporting activities. Some respondents also provided examples of occasions when their household members, wider family, whānau or friends had experienced challenges because of their association with an employee of the MIQFs.

For consideration

Suggested priorities for supporting MIQF staff wellbeing

The following suggested priorities are based on the survey findings as well as information derived from the international literature (Appendix A). Generally, the survey findings align with the findings in the international literature.

The strategies listed below may be useful in the support of wellbeing for front-line staff within MIQ facilities in Canterbury. It is noted that some or many of these strategies may already be in place to varying extents (the survey was cross-sectional; therefore the findings only present a snapshot in time and they cannot reflect more recent events). This is especially important in light of the rapidly evolving nature of the COVID-19 response and the time elapsed since the closure of the MIQF staff survey (11 January 2021).

Specific actors have not been identified for the strategies below as it is expected these will be identified, as necessary, by the C-RIQ leadership and other relevant stakeholders.

1. Continue to monitor the overall wellbeing of all staff working within the MIQF system, with a focus on specific and/or emerging areas for intervention/improvement.
2. Continue to communicate acknowledgment from government officials and other public figures of the demands of MIQ work, and issue statements against COVID-related stigma and discrimination.
3. Develop interventions to reduce stigma, tailored to the local context, such as media campaigns.
4. Work to ensure barrier-free access to healthcare services for staff working within the MIQF system, implementing additional communications strategies or services/infrastructure as needed.
5. Explore options for ongoing supportive supervision and psychological support for MIQ workers.
6. Continue to provide workers with training to build and maintain confidence in providing the care/services required.
7. Consider a mechanism, such as a web-based/mobile application, to provide staff with easily accessible up-to-date notifications of SOP/protocol updates, logistics, and other essential information.
8. Disseminate guidance regarding MIQF workers' off-duty interactions with others. As part of this, consider developing tailored guidelines to share with third party organisations (e.g., service providers, clubs, sports facilities, and other workplaces).
9. Ensure staff continue to be aware of the procedure in the case of a staff member being identified as a COVID-19 case (including privacy considerations, accommodation, and welfare support).

Appendix A

LITERATURE REVIEW

Introduction

The literature search included studies that describe the ways in which healthcare and other front-line workers have experienced national or global responses to novel viral epidemics/pandemics, over the last 20 years. To the extent possible within the constraints of this rapid review; systematic reviews, meta-analyses, and evaluation studies that reported front-line workers' experiences of epidemic/pandemic responses, and the associated psychological and societal challenges, are discussed below. The studies span a range of countries and settings, however, they mostly describe the experiences of healthcare workers, as less research has been applied to understanding the effects of a sustained pandemic response on other non-health front-line workers. Nevertheless, many of the studies propose strategies that might be applied to mitigate any adverse effects for all these employment groups [22,23,30,34].

Context and limitations

The evidence summarised here primarily relates to healthcare settings generally – hospitals, clinics, and community settings during previous novel virus epidemics/pandemics over the last 20 years – rather than relating specifically to COVID-19 or the context of Aotearoa New Zealand's managed isolation and quarantine facilities (MIQF). The type and scale of the border control measures implemented in Aotearoa New Zealand has not been widely implemented or evaluated previously. Further, while there is a developed evidence base for influenza, HIV, EBOLA, MERS, and SARS, these viruses all differ in their transmissibility characteristics and in the severity of the resultant illness, therefore their associated risks may be perceived and acted upon differently by various groups and individuals. Finally, there were no studies identified that were conducted in New Zealand or that provided information specific to Māori or Pasifika or specifically to New Zealand's COVID-19 response.

Despite these limitations, previous epidemics and settings share many common elements, to greater or lesser degrees. The circumstances generally involved healthcare and other front-line staff working in exposure settings such as in-patient care/quarantine/isolation contexts, as part of a broader novel viral outbreak response. This review does not attempt to quantify these similarities and differences and the reader should be mindful of the breadth of the different contexts when drawing inferences about the generalisability of these findings. For example, it is important to consider that the severity of illness of symptomatic COVID-19 cases managed within the MIQF setting will be lower than those managed in an in-patient setting.

Methods

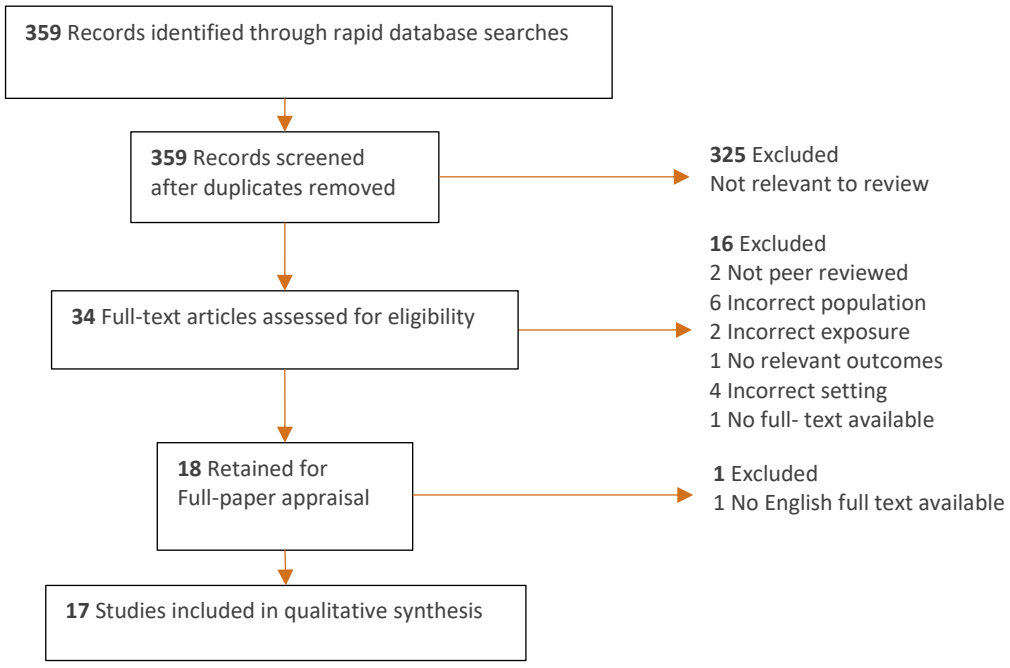
A rapid review of the literature was undertaken to identify relevant studies that report the occurrence, prevention, and management of the psychological effects of emerging, novel, virus outbreaks on healthcare and/or other front-line workers engaged in a novel viral outbreak response (see the research strategy outlined in Table 3). Academic, peer-reviewed articles were sourced from major databases including MEDLINE, PsycInfo, and Google Scholar. The search was carried out between 10 and 14 December 2020.

The search for articles used a combination of key terms including 'novel Influenza', 'HIV', 'EBOLA', 'MERS', 'SARS', COVID-19', 'epidemic', 'pandemic', 'healthcare worker', infectious disease', 'stigma', 'psychological', 'prejudice'. Article types were filtered by the record types: 'review', 'comparative study', 'evaluation study', 'guideline', 'journal article', and 'observational study'. Additional articles were sourced using a snowball approach (Figure 19).

Table 3: Problem, Intervention, Comparison, Outcome research strategy

Component	Description
Problem	Healthcare workers and other front-line workers may experience adverse psychological outcomes and stigmatisation and discriminatory behaviours during and following a major pandemic response
Intervention	What will be the most suitable tools and practices in dealing with any psychological effects, stigma, and/or discriminatory behaviours directed at front-line workers during and following a pandemic response?
Comparisons	What are the differences between, or descriptions of, the different tools, practices, and methodologies?
Outcomes	To what extent can best practice interventions protect/enhance the wellbeing of front-line workers during and following a pandemic outbreak?

Figure 19: Study selection flowchart



Findings

Overall, 359 potentially relevant citations were identified in the initial electronic and snowball searches. Of these 359 articles, 17 papers were appraised and included in this rapid review (see details in Figure 19). Of the included studies, 7 included information related to SARS, 3 included information related to MERS, 1 included information related to H1N1 Influenza, 6 included information related to Ebola virus disease, and 7 included information related to COVID-19. The results of these 17 studies are briefly outlined below. Note, the relevance of the extensive HIV/AIDS literature was assessed separately, taking several factors into account, and these articles were subsequently excluded from this rapid review.[13]

The publications included 2 systematic reviews, 4 narrative reviews, and 11 qualitative studies, with publication dates spanning the period 2004 – 2020. The 17 studies are organised below by level of evidence (systematic review, narrative review, qualitative study), by condition (COVID-19, then other), and by publication date.

Systematic reviews[14]

Cabarkapa et al. (2020) [35] conducted a systematic review of 55 studies related to SARS, MERS, EBOLA, and COVID-19. The review aimed to investigate the psychological impact on healthcare workers facing epidemics or pandemics. The results demonstrated an increased risk of acquiring trauma or stress-related disorders, depression and anxiety. Fear of the unknown or becoming infected were salient issues. The perceived stigma from family members and society heightened negative implications. The study highlighted the need for greater psychosocial support and clearer dissemination of disease-related information. The authors concluded that the psychological implications are largely negative and require greater attention to be mitigated, potentially through the involvement of psychologists, raised awareness, and better education.

Kisely et al. (2020) [21] conducted a systematic review of 59 studies related to SARS, H1N1, MERS, EBOLA, and COVID-19. The review aimed to examine the psychological effects on clinicians of working to manage novel viral outbreaks. Staff in contact with affected patients had greater levels of both acute or post-traumatic stress and psychological distress (the greater the potential for exposure, the greater the psychological effects). The authors concluded that effective interventions are available to help mitigate the psychological distress experienced by staff: such as clear communication, access to adequate PPE, adequate rest, and both practical and psychological support.

Narrative reviews[15]

Semo et al. (2020) [36] conducted a narrative review of studies related to COVID-19. The review aimed to investigate the mental health impact of the COVID-19 pandemic on healthcare workers. The review found that healthcare workers experience stigma and discrimination, post-traumatic stress, anxiety, depression, and insomnia. The papers detailed that virtual mental health services have been established in many settings and social media can be used to impart mental health education. Mass media is a feasible way of providing social resources. Community health workers can also be trained quickly and redeployed to provide mental health education, screening and counselling services.

Chersich et al. (2020) [37] conducted a narrative review of studies related to COVID-19, in the context of low-income countries in Africa. The review aimed to examine the challenges healthcare workers can face, including mental stress, physical exhaustion, separation from families, and stigma. The review examined

[13] The context of the emergence of HIV cases was a contributing factor to the resultant stigmatisation of both cases and caregivers (Verma et al., 2004). Therefore, the HIV/AIDS literature was not considered sufficiently applicable to this review.

[14] Systematic reviews typically involve a detailed and comprehensive plan and search strategy, with the goal of locating all relevant published and unpublished studies and reducing bias by identifying, appraising, and synthesising all the relevant information on a particular topic. Rigorous critical appraisal is applied to each study, and a meta-analysis may be performed to provide a pooled estimate of intervention effectiveness.

[15] A narrative review is a research paper that presents the current knowledge including substantive findings as well as theoretical and methodological contributions to a particular topic. Narrative reviews provide an evidence-based general discussion of a subject with no stated hypothesis Narrative reviews are secondary sources and do not report new or original experimental work. Narrative reviews do not usually attempt to locate all relevant literature.

these challenges and the authors proposed interventions that may be used to protect healthcare workers, based on articles identified in the literature. The authors concluded that prioritising healthcare workers for SARS-CoV-2 testing, for hospital beds if needed, implementing carefully managed risk 'allowances' or financial compensation, as well as ensuring that public figures acknowledge the commitment of health care workers may help to maintain morale. Healthcare workers, using their authoritative voice, can promote effective COVID-19 policies and prioritisation of their safety.

Dubey et al. (2020) [8] conducted a narrative review of studies related to COVID-19. The review aimed to examine the psychosocial impact of COVID-19 on different strata of society (including healthcare and other front-line workers). The study found that front-line healthcare workers are at higher-risk of contracting COVID-19 as well as experiencing adverse psychological outcomes. The main outcomes reported in the studies include: burnout, anxiety, fear of transmitting infection, feeling of incompatibility, depression, increased substance-dependence, and PTSD. The authors identified a number of interventions that could be used to mitigate these adverse effects, including: support from higher authorities, clear communication and regular accurate updates regarding precautionary measures, sustained connection with family and friends through smartphone technology, shorter working duration, regular rest periods, rotating shifts, sufficient supply of appropriate PPE, arrangements for well-equipped isolation wards specifically for infected healthcare workers, an insurance system for work-related injuries, and long-term psychological follow-up.

Ogoina et al. (2016) [38] conducted a narrative review of studies related to EBOLA. The review aimed to document healthcare and other front-line workers' behavioural and emotional responses to the 2014 Ebola outbreak in Nigeria. Healthcare and other front-line workers who treated Ebola patients, faced significant stigma and discrimination. The Government responded promptly with a strategy that included regular dissemination of accurate information and mobilising community partners and organisations to facilitate change through an interdisciplinary approach (social mobilisation).

Qualitative studies

Zolnikov et al. (2020) [16] undertook a qualitative study to understand and explore the experiences of healthcare workers and first responders during the COVID-19 pandemic. The study was based on in-depth interviews with 31 first responders. Participants reported feelings of isolation, lack of support, increased feelings of sadness and anxiety, and reluctance to ask for help or get treatment. The public dissemination of science-based information could potentially reduce the stigmatisation experienced by healthcare workers. Communications need to simultaneously convey the message that precautions do need to be taken seriously, while neither exaggerating nor downplaying the risks associated with people who are potentially most exposed.

Liu et al. (2020) [39] undertook a qualitative study to obtain an in-depth understanding of healthcare providers' experiences of caring for patients with COVID-19 patients.[16] The study was based on in-depth interviews with nine nurses and four physicians (total n=13). The study participants reported experiencing physical exhaustion due to heavy workloads and protective gear, the fear of becoming infected and infecting others, and feeling powerless to handle patients' conditions. Comprehensive support is needed for front-line healthcare providers, including sufficient PPE, reasonable work schedules, effective communication, monitoring and supervision, and professional psychological support.

Raven et al. (2018) [40] undertook a qualitative study to explore the challenges faced by health workers (in fragile states) and to explore their coping strategies during Ebola outbreaks. The study was based on in-depth interviews with 44 front-line healthcare workers. Important coping strategies included: being sustained by religion, having a sense of serving their country and community, and peer and family support. Additional interventions included, training, provision of equipment, a social media chat-group (via WhatsApp) and a risk allowance. The authors concluded that supportive supervision, peer support networks, and better use of communication technology should be pursued.

[16] Note that the context for this study is a 'hospital setting' and the objective risk is likely to be considerably higher than found in an MIQF setting. The findings may not be fully applicable to MIQF workers.

Englert et al. (2018) [30] undertook a qualitative study to explore community health workers' perspectives on past Ebola and Marburg outbreaks in Uganda. The study was based on in-depth interviews with 44 front-line healthcare workers. Healthcare workers frequently encountered stigma from their communities, sometimes accompanied by mistrust and violence. Healthcare workers also suffered emotional trauma, depressive symptoms, and fear. The authors concluded that healthcare workers require greater access to personal protective equipment (PPE) and knowledge of viral containment.

Almutairi et al. (2018) [28] undertook a qualitative study to explore the experiences of healthcare workers who survived MERS (as a MERS patient) and how the infection affected their relationship with their colleagues. The study was based on in-depth interviews with seven MERS survivors who were healthcare providers. The authors identified three relevant themes from the data: (1) perceived prejudice behaviours and stigmatisation, (2) lived moments of traumatic fear and despair, and (3) denial and underestimation of the seriousness of the disease at the individual and organisational levels. The authors concluded that healthcare workers who become infected during a pandemic are physically and psychologically vulnerable, and it is their organisation's responsibility to provide a system that embraces healthcare workers during and after disastrous events.

Sow et al. (2016) [41] undertook a qualitative study to explore the experiences of healthcare workers who survived EBOLA (as an EBOLA patient). The study was based on in-depth interviews with 20 front-line healthcare workers who survived Ebola virus disease. The participants described various forms of stigma faced by Ebola health professional survivors. Stigmatisation was mainly expressed through avoidance, rejection, or being refused to be reinstated in the position at work and non-acceptance of the disease by third parties. This research study indicated that stigma was perpetuated among health agents, towards workers who were exposed by their professional role.

Maunder et al. (2006) [42] undertook a qualitative study to measure SARS-related perception of stigma and interpersonal avoidance; adequacy of training, protection, and support; and job stress, in a group of healthcare workers involved in the SARS response in Toronto and Hamilton in 2003. The study was based on two on-line surveys of 769 health care workers in a dedicated SARS hospital (including nurses, educators, clerical staff, physicians, respiratory therapists, and other staff) 13–25 months after the last SARS patient was discharged. The authors concluded that perceived adequacy of training, moral support, and protection were associated with better psychological, practical, and functional outcomes at follow-up. At the system level, enhanced support and training may reduce burnout and posttraumatic stress. At the individual level, identifying and supporting health care workers who are at the highest risk for persistent psychological and occupational consequences should be prioritised. The likelihood of prolonged subjective distress in a substantial proportion of healthcare workers should be factored into surge capacity modelling during and after the pandemic.

Chen et al. (2005) [43] undertook a qualitative study to explore whether nurses who were working during the SARS crisis showed symptoms of distress. The study was based on online surveys of 131 healthcare workers in a hospital setting. The authors found that 11 percent of the nurses surveyed had a stress reaction syndrome – as evaluated with the Impact of Event Scale and a 90-item Symptom Checklist. The authors suggested that the psychological distress of nurses who worked during the SARS outbreak was moderate. The authors concluded that nurses who work with highly contagious patients should be given extensive training, adequate compensation, and meaningful reassurance to reduce their stress reactions. For example, offering continuous education on infection control and self-protection to promote professional expertise, providing a periodic health assessment to reassure nurses of their physical wellbeing, and screening at-risk nurses for distress so that psychological intervention can be provided.

Verma et al. (2004) [44] undertook a qualitative study to examine the psychological impact of SARS on General Practitioners and traditional Chinese medicine practitioners in Singapore. The study was based on online surveys of 1,050 GPs and Chinese medicine practitioners. The authors found that the fear, uncertainty and stigma caused by SARS were associated with significant psychological distress among approximately 15 percent of primary healthcare providers in Singapore. After the outbreak of SARS in Singapore, an aggressive public education campaign was launched to educate the public about the symptoms, cause and prevention of the illness.

YaMei Bai et al. (2004) [45] undertook a qualitative study to investigate stress reactions among 338 staff members in a hospital in East Taiwan that discontinued emergency and outpatient services to manage the SARS outbreak. During the outbreak, 57 staff members (close contacts) were quarantined. At follow-up (soon after all quarantined members had returned to work), 5 percent of respondents met the criteria for an acute stress disorder, and quarantine was the most related factor. A further 20 percent reported feeling stigmatised and rejected in their neighbourhood because of their hospital work. Quarantined staff members were at a high risk of developing an acute stress disorder. These findings suggest that there is a role for providing accurate and timely SARS information to healthcare workers and the public to reduce uncertainty and minimise stigmatisation of healthcare workers. Providing suitable accommodation to healthcare workers may also benefit those who are concerned about the risk of infecting family members. The authors concluded that organisations need to have a well-developed and integrated psychosocial response to future outbreaks of this nature.

Robertson et al. (2004) [46] undertook a qualitative study to examine the psychosocial effects on healthcare workers of being quarantined because of exposure to severe acute respiratory syndrome (SARS). The study was based on in-depth interviews with ten healthcare workers who had been quarantined. The authors described three main themes concerning psychosocial effects: loss, duty, and conflict. In addition to the physical and social isolation, healthcare workers experienced stigma as a result of their exposure to SARS. Simultaneous roles as both health professionals and family members caused several conflicts. The authors concluded that the findings highlighted the need for clear and consistent information, good infection control procedures, practical advice on coping strategies, and stress management. Healthcare workers also need accessible referrals to mental health professionals.

Summary of interventions

Many of the 17 studies summarised above provide recommendations and/or evidence relating to the most promising interventions that may be used to support front-line workers' wellbeing during an emerging disease outbreak. A number of these studies included summary tables of interventions grouped variously, depending on the focus or context of the study (and with much overlap). Taken together, the interventions can broadly be grouped as either *support interventions*, *information interventions*, *training interventions*, or *employment interventions*, as summarised in Table 4.

Table 4: Summary of interventions for supporting workers' health and wellbeing

Intervention type	Examples
Support interventions	– Acknowledgment by public figures. – Social media platform for workers. – Supportive supervision/psychological support. – Long term psychological follow-up and treatment for PTSD, substance abuse, and other psychological problems. – Virtual mental health services, taken to scale and ensuring equity and efficiency. – Rapid training of community health workers to provide mental health education, screening and counselling (provide customised care). – Free access to stigma-free health services (regular health care). – Social mobilisation: The process of bringing together all societal and personal influences to raise awareness and assist in the delivery of resources and services and cultivate sustainable individual and community involvement. – Arrangements for well-equipped quarantine/isolation facilities specifically for exposed front-line workers, if needed. – No-fault insurance/benefit system for work-related injuries, stand-downs, or other issues. – Sustained connection with family and friends through smartphone/chat groups. – Close gaps in response capacity (i.e., promptly respond to any identified/evolving capacity gaps such as staffing levels/workloads, training, and equipment).
Information interventions	– Mass media campaigns (communicate risk based on scientific evidence to prevent both under- and over-cautiousness among the public, and avoid using war language, for example 'the front-line response', which may increase stigma and undermine people's sense of collective support and care). – Official statements by top government officials (and community stakeholders and leaders) against disease-related stigma and discrimination. – Clear dissemination of disease-related information. – Generally expanding the role of communication as a vital component of public health practice. – Clear communication and regular, accurate updates regarding precautionary measures.
Training interventions	– Training to build/maintain confidence in role. – Workshops on dealing with stigma.
Employment interventions	– Risk allowances. – Reduced hours. – Regular rest periods. – Rotating shifts (with flexibility). – Simple, clear, non-negotiable rules for in-work and out-of-work interactions. – Easy access to appropriate PPE and testing.

Sources: Cheatley (2020); Chersich et al. (2020); Habersaat et al. (2020); Kavita (2007)[47]; Quinn et al. (2013); Semco et al. (2020).

Evidence table

Table 5: Summary of systematic reviews, narrative reviews, and qualitative that describe the ways in which healthcare and other front-line workers have experienced national or global responses to novel viral epidemics, over the last 20 years (by level of evidence, condition, and by publication date)

Study	Design	Virus/Disease	Objective	Findings	Conclusions
Cabarkapa 2020	Systematic Review	SARS; MERS; EBOLA; COVID-19	To investigate the psychological impact on HCWs facing epidemics or pandemics.	Found an increased risk of acquiring trauma or stress-related disorders, depression and anxiety. Fear of the unknown or becoming infected were salient issues.	The perceived stigma from family members and society heightened negative implications. The study highlighted the need for greater psychosocial support and clearer dissemination of disease-related information. Psychological implications are largely negative and require greater attention to be mitigated, potentially through the involvement of psychologists, raised awareness and better education.
Kisely 2020	Systematic Review	SARS; H1N1; MERS; EBOLA; COVID-19	To examine the psychological effects on clinicians of working to manage novel viral outbreaks.	Staff in contact with affected patients had greater levels of both acute or post-traumatic stress and psychological distress.	Effective interventions are available to help mitigate the psychological distress experienced by staff: such as clear communication, access to adequate PPE, adequate rest, and both practical and psychological support.
Semo 2020	Narrative Review	COVID-19	To investigate the mental health impact of the COVID-19 pandemic.	HCWs experience stigma and discrimination, post-traumatic stress, anxiety, depression, and insomnia.	Virtual mental health services have been established in many settings and social media can be used to impart mental health education. Mass media is a feasible way of providing social resources. Community health workers can be trained quickly to provide mental health education, screening and counselling services.
Chersich 2020	Narrative Review	COVID-19 Note: the context is specifically low-income countries in Africa.	To examine the challenges and propose interventions to protect HCWs, based on articles identified in the literature.	HCWs can face mental stress, physical exhaustion, separation from families, stigma. Prioritising healthcare workers for SARS-CoV-2 testing, hospital beds, carefully managed risk 'allowances' or compensation, targeted research, as well as ensuring that public figures acknowledge the commitment of HCWs.	Healthcare workers, using their authoritative voice, can promote effective COVID-19 policies and prioritisation of their safety.
Dubey (2020)	Narrative Review	COVID-19	To examine the psychosocial impact of COVID-19 on different strata of society (including healthcare and other front-line workers.	Front-line HCWs are at higher-risk of contracting the disease as well as experiencing adverse psychological outcomes in form of burnout, anxiety, fear of transmitting infection, feeling of incompatibility, depression, increased substance-dependence, and PTSD.	Interventions are needed including: support from higher authority; clear communication and regular accurate updates regarding precautionary measures; sustained connection with family and friends through smartphone; shorter working duration, regular rest period, rotating shifts; sufficient supply of appropriate PPE; arrangements for well-equipped isolation wards specific for infected HCWs, insurance system for work-related injuries; long term psychological follow-up.
Ogoina 2016	Narrative Review	EBOLA	To review the documented behavioural and emotional	HCWs who treated Ebola patients, faced stigma and discrimination.	Governments responded promptly with a strategy that included regular dissemination of accurate information and social mobilisation, among others.

			responses to the 2014 Ebola outbreak in Nigeria.		
Zolnikov 2020	Qualitative (in-depth interviews with 31 first responders)	COVID-19	To understand and explore the experiences of HCWs and first responders during the COVID-19 pandemic.	Participants reported feelings of isolation, lack of support, decreased or forced removal, increased feelings of sadness and anxiety, and reluctance to ask for help or get treatment.	The dissemination of science-based information could potentially reduce the stigmatisation experienced by health care workers. Communications need to simultaneously convey the message that precautions do need to be taken seriously, while neither exaggerating nor downplaying the risks associated with people who are potentially most exposed.
Liu 2020	Qualitative (based on in-depth interviews with 9 nurses and 4 physicians).		To obtain an in-depth understanding of health-care providers' experiences of caring for patients with COVID-19.	The study participants experienced physical exhaustion due to heavy workloads and protective gear, the fear of becoming infected and infecting others, and feeling powerless to handle patients' conditions.	Comprehensive support is needed for front-line health-care providers, including sufficient PPE, reasonable work schedules, effective communication, monitoring and supervision, and professional psychological support.
Raven 2018	Qualitative N = 44 (Managers = 19; HCWs = 25)	EBOLA (in fragile states)	To explore the challenges faced by health workers and their coping strategies during Ebola outbreaks.	Important coping strategies were: being sustained by religion, a sense of serving their country and community, and peer and family support. And, training, provision of equipment, a social media chat-group (WhatsApp) and a risk allowance.	Supportive supervision, peer support networks and better use of communication technology should be pursued.
Englert 2018	Qualitative N = 41 interviews with HCWs from three outbreaks.	EBOLA (Uganda)	Community health worker perspectives on past Ebola and Marburg outbreaks in Uganda.	HCWs frequently encountered stigma from their communities, sometimes accompanied by mistrust and violence. HCWs also suffered emotional trauma, depressive symptoms, and fear.	HCWs require greater access to personal protective equipment (PPE) and knowledge of viral containment.
Almutairi 2018	Qualitative (n=7 MERS survivors who were healthcare providers).	MERS	To explore the experiences of HCWs who survived MERS (as a MERS patient) and how the infection affected their relationship with their colleagues.	Four themes were (1) caring for others in the defining moments, (2) perceived prejudice behaviours and stigmatisation, (3) lived moments of traumatic fear and despair, and (4) denial and underestimation of the seriousness of the disease at the individual and organisational levels.	As these survivors are vulnerable, it is their organisation's responsibility to provide a system that embraces HCWs during and after disastrous events.
Sow 2016	Qualitative (in-depth interviews with 20 HCWs).	EBOLA	To describe the various forms of stigma faced by Ebola health professional survivors.	Stigmatisation is mainly expressed through avoidance, rejection, or being refused to be reinstated in the position at work and non-acceptance of the disease by third parties.	This research study shows that stigma is perpetuated among health agents, towards workers who were exposed by their professional role.
Maunder 2006	Observational (based on	SARS	To measure SARS-related perception of stigma and	769 HCWs (nurses, educators, clerical staff, physicians, respiratory therapists, and other	At the system level, enhanced support and training may reduce burnout and posttraumatic stress. At the individual

	two online surveys of 769 HCWs in a dedicated SARS hospital).		interpersonal avoidance; adequacy of training, protection, and support; and job stress, in a group of HCWs involved in the SARS response in Toronto and Hamilton in 2003.	staff) responded to survey about the impact of SARS 13–25 months the last SARS patient discharged. Perceived adequacy of training, moral support, and protection were associated with better psychological, practical, and functional outcomes at follow-up.	level, identifying and supporting HCWs who are at the highest risk for persistent psychological and occupational consequences should be prioritised. The likelihood of prolonged subjective distress in a substantial proportion of HCWs should be factored into surge capacity modelling during and after the pandemic.
Chen 2005	Observational (based on two online surveys of 131 HCWs in a hospital setting).	SARS	To explore whether nurses who were working during the SARS crisis showed symptoms of distress.	11% of the nurses surveyed had stress reaction syndrome – as evaluated with the Impact of Event Scale and the 90-item Symptom Checklist-Revised.	These findings suggest that the psychological distress was moderate. Nurses who work with highly contagious patients should be given extensive training, adequate compensation, and meaningful reassurance to reduce their stress reactions e.g., offering continuous education on infection control and self-protection to promote professional expertise, providing a periodic health assessment to reassure nurses of their physical well-being, and screening at-risk nurses for distress so that psychological intervention can be provided.
Verma 2004	Qualitative N = 1,050 GPs/TCMPs	SARS	To examine the psychological impact of SARS on General Practitioners and Traditional Chinese Medicine Practitioners in Singapore.	The fear, uncertainty and stigma caused by SARS were associated with significant psychological distress among approximately 15% of primary healthcare providers in Singapore.	After the outbreak of SARS in Singapore, an aggressive public education campaign was launched to educate the public about the symptoms, cause and prevention of the illness.
YaMei Bai 2004	Qualitative (based on 338 HCW's responses to an online survey)	SARS	To investigate stress reactions among 338 staff members in a hospital in East Taiwan that discontinued emergency and outpatient services to manage the SARS.	57 staff members (close contacts) were quarantined. At follow-up (soon after all quarantined members had returned to work): 5% of respondents met the criteria for an acute stress disorder, and quarantine was the most related factor. 20% reported feeling stigmatised and rejected due to their work.	These findings suggest that there is a role for providing accurate and timely SARS information to HCWs and the public to reduce uncertainty and minimise stigmatisation of HCWs. Providing suitable accommodation to HCWs may also benefit those who are concerned about the risk of infecting others. Organisations need to have a well-developed and integrated psychosocial response to future outbreaks of this nature.
Robertson 2004	Q N=10 HCWs	SARS	To examine the psychosocial effects on health care workers of being quarantined because of exposure to severe acute respiratory syndrome (SARS).	3 major themes concerning psychosocial effects: loss, duty, and conflict. In addition to the physical and social isolation, HCWs experienced stigma as a result of their exposure to SARS. Being both HCWs and family members caused several conflicts.	Clear and consistent information Good infection control procedures Practical advice on coping strategies and stress management Provide accessible referrals to mental health professionals.

HCW = Health Care Worker.
PPE = personal protective equipment.
SARS = Severe acute respiratory syndrome caused by the SARS-CoV-1 virus; 2002-2004; ≈10% mortality.
EBOLA = also known as Ebola virus disease (EVD), is a viral haemorrhagic fever caused by ebolaviruses; 1976-current; largest outbreak 2013-2016; ≈50+% mortality.
H1N1 = influenza A virus subtype H1N1; 1918 flu pandemic and 2009 swine flu pandemic; estimated 2-10% mortality.
MERS = Middle East respiratory syndrome, caused by the MERS-coronavirus (MERS-CoV); 2012–present; ≈35% mortality.
COVID-19 = Coronavirus disease 2019; a contagious disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2); 2019 - current.
TCMPs = Traditional Chinese Medicine Practitioners.

Discussion

The 17 studies included in this rapid review examine the psychological impacts on healthcare workers and other front-line workers involved in managing novel viral epidemics/pandemics, over the last 20 years. These previous epidemic events have included Severe Acute Respiratory Syndrome (SARS) in 2003, H1N1 Influenza in 2009, Middle East Respiratory Syndrome (MERS) in 2012, Ebola Virus Disease 2014-2016, and the current COVID-19 pandemic. These viral epidemics all differ considerably in their epidemiology, clinical features, transmission patterns, and management. However, these previous epidemics and settings also share many common elements, including: the need for government-led non-pharmaceutical interventions to help mitigate the spread of disease, as well as the need for healthcare workers and other front-line workers to assist with disease management. This work can involve supporting potentially contagious people (patients), often under heavy workloads, and with the constant fear of becoming infected and infecting others. Many of the studies describe settings such as isolation hospitals and clinics as placing workers at high risk for persistent adverse psychological and occupational consequences. These consequences include anxiety, depression, devaluing (by others) leading to low-self-esteem, rejection by colleagues and people in the wider community, stress, physical health problems, and limited access to protective factors.

Despite the similarities between past epidemic events, differences in the scale and the severity of the exposure, and the overall epidemic response, need to be taken into consideration. These differences tend to shape the level of *threat* perceived by various groups and individuals. Research suggests that psychological distress and disease-avoidance behaviours tend to increase as the cost of infection increases (i.e., both the real risk posed to one's health and the associated disruption of daily life) [18,48]. Therefore, due consideration is required when applying the findings from one specific situation to a completely different group of people or context or time [49]. For the best case-to-case translation of the evidence, readers should consider studies where the people, settings, socio-political contexts, and times are most alike; that is, most similar to those in the current New Zealand context [50]. This review does not attempt to quantify these similarities or differences and the findings of this rapid review should be not be overgeneralised.

High-stress situations, such as a pandemic response, place healthcare workers and other front-line workers at risk for adverse physical, psychosocial, and economic outcomes. Several review studies [8,11,21,35,36,38] have reported similar findings with respect to the psychological risks that such settings pose for healthcare workers and other front-line workers. In these circumstances, distorted disease perception, misinformation, and fear can trigger reactions that can disproportionately affect front-line workers (and their significant others) and lead to negative psychosocial outcomes, particularly for the poorer and the more vulnerable in a society. Further, a recent meta-analysis [21] found evidence of a dose-response relationship whereby the greater the *perceived* potential for transmission of the virus, then the greater the psychological effects.

The psychological effects outlined in these reviews, and in other qualitative studies, [16,28,30,39-46] can be broadly classified into two types as defined by their origins, either:

socially conferred (i.e., because of others' behaviours), such as disapproval, rejection, exclusion, and discrimination, or

directly conferred/internalised[17] (i.e., because of one's own response to a situation or environment), such as stress, fear, and anxiety [30].

Several long-term psychosocial outcomes have also been documented, including: emotional trauma, stress disorders, anxiety, depression, and substance abuse [16,21-23] and more broadly, low staff motivation, poor staff retention, low morale, and 'burnout' [24,25].

[17] i.e., when a person comes to believe assumptions and stereotypes and apply them to him- or herself.

Stigma

The most widely documented socially conferred psychological effect within this context is stigma. Stigma both signals the recognition of difference and devalues the person. Stigma deprives a person from the full acceptance of the society in which they live [51]. Stigma is characterised by labelling, stereotyping, and separation, leading to status loss, discrimination, high levels of individual stress, and significant health disparities [52,53]. Stigma within health settings has been well documented [53] and stigma within health care does not only affect those who are the primary targets. Its consequences can ripple outward through families and communities and inwards through the health facility and into the policies and the standard operating procedures that guide services. The association with the mere possibility of infection increases the risk of being stigmatised and experiencing discrimination [53].

Findings also show that stigma toward an unfamiliar illness can be triggered by inconsistent health policy responses and from miscommunication by the media. While recognising the intrinsically stigmatising nature of some public health measures, studies suggest that a consistent inter-sectoral approach is needed to minimise stigma and to support an effective public health response to novel viral outbreaks [7].

Evidence for pro-active intervention

Studies [21] provide evidence that some healthcare workers may experience significant stress and distress as a consequence of working with people with COVID-19 [32]. Studies suggest that workforce protection programmes within key institutions require significant resources to ensure both the physical safety of front-line workers and their families, and to preserve the individual and family wellbeing of the front-line workforce.

Many interventions have been implemented/tested

Effective interventions are available to help mitigate the psychological distress experienced by front-line workers during an emerging disease outbreak. These interventions have previously been applied to a wide range of settings and outbreak types. Several systematic reviews of the literature, and several other studies, have provided summaries of the interventions with the most potential for improving workers' wellbeing and the quality of services provided within a facility (summarised in Table 4).

A number of these interventions focus on stigma prevention and on the provision of psychological support for workers. Mass media campaigns have featured as prominent components of containment strategies and anti-stigma strategies during past epidemic events. During an epidemic, policymakers can use media campaigns to communicate risk levels with the public. The communications should avoid using war language, for example 'the front-line response', which may increase stigma and undermine people’s sense of collective support and care [54]. Studies have shown that the impact of media campaigns can be increased by using trusted spokespeople like public health officials and through a role model effect from officials [7,8,55]. Social mobilisation has also featured in past epidemic responses (for example, to reduce the significant stigma and discrimination associated with EBOLA). Social mobilisation is the process of bringing together all societal and personal influences to raise awareness and assist in the delivery of resources and services and cultivate sustainable individual and community involvement. Other communication interventions leverage communication technologies to provide workers and the public with easily accessible, up-to-date information, notifications, and updates, delivered on web-based/mobile applications. Other types of interventions focus on supporting front-line workers' mental health: including the use of psychologists, virtual mental health services, pro-active long-term psychological follow-up, alongside sound support and leadership from managers.

Conclusion

Studies that describe the experiences of front-line workers during past responses to novel viral epidemics offer useful information on the associated psychological and societal implications. The literature also provides valuable insights into strategies that might be applied to mitigate any adverse effects on front-line workers' mental and physical health during and following a sustained epidemic response. The studies span a range of countries and settings, and they mostly describe similar types of experiences and mitigation strategies, even though the scale of the outbreaks, the intensity and duration of the responses, and the impacts on front-line workers all vary.

In the high-stress setting of an epidemic response, distorted disease perception, misinformation, and fear may trigger stigmatising reactions from within the community. Further, the nature of some public health measures used to control novel viral epidemics/pandemics can be intrinsically stigmatising and may result in adverse psychological effects for healthcare and other front-line workers. Stigma does not only affect those who are the primary targets, its consequences ripple outward through families and communities.

Implementing strategies to reduce any adverse psychological impacts on front-line workers has the potential to improve the workplace environment, the quality of services provided by staff, and the psychological wellbeing of front-line workers.

Appendix B

Questionnaire

A survey of staff working in Canterbury's Managed Isolation and Quarantine facilities

You are invited to complete this survey about your experience of working in our Managed Isolation and Quarantine Facilities (MIQFs). This way of working is new and so it is important that we learn about what is going well, and about what is proving challenging for our local workforce. We plan to share the findings, at a national level, as part of a report about working in MIQFs, but wish to assure you that your responses are anonymous and cannot be linked to you personally in any way. Any potentially identifying information will not be included in the report or summary document. The final report and summary document will also be made available to staff working in our local MIQFs.

Thank you for taking the time to complete this survey.

1) What is your current MIQF function?

❍Health and Wellbeing ❍Administration

❍Hotel Services ❍Operational/Management (MIF)

❍Security/Compliance ❍Operational/Management (RIQ)

2) What is your gender?

❍ Male ❍ Female ❍ Gender Diverse

3) What is your age?

4) Which ethnic group or groups do you belong to? Please select all that apply to you.

❍ New Zealand European

❍ Māori

❍ Samoan

❍ Cook Island Māori

❍ Tongan

❍ Niuean

❍ Chinese

❍ Other such as Dutch, Japanese, Tokelauan. Please specific below.

5) In total how long have you been employed in the Canterbury Managed Isolation and Quarantine Facilities?

Please indicate your level of agreement with each of the following statements:

6) I am proud of the contribution I am making to New Zealand's COVID-19 response through my work in the Managed Isolation and Quarantine Facilities.

Strongly disagree ❍ Disagree ❍ Neutral ❍ Agree ❍ Strongly agree ❍

7) I feel I make a contribution to the success of Canterbury's Managed Isolation and Quarantine Facilities.

Strongly disagree ❍ Disagree ❍ Neutral ❍ Agree ❍ Strongly agree ❍

8) I have confidence in the operating procedures in place at the Managed Isolation and Quarantine Facilities.

Strongly disagree ❍ Disagree ❍ Neutral ❍ Agree ❍ Strongly agree ❍

9) I feel valued as an employee by the management of the Managed Isolation and Quarantine Facilities.

Strongly disagree ❍ Disagree ❍ Neutral ❍ Agree ❍ Strongly agree ❍

10) I feel valued by the guests who stay in the Managed Isolation and Quarantine Facilities.

Strongly disagree ❍ Disagree ❍ Neutral ❍ Agree ❍ Strongly agree ❍

11) My job in the Managed Isolation and Quarantine Facilities is fulfilling.

Strongly disagree ❍ Disagree ❍ Neutral ❍ Agree ❍ Strongly agree ❍

12) Overall, my day-to-day work at the Managed Isolation and Quarantine Facilities positively affects my health and wellbeing.

Strongly disagree ❍ Disagree ❍ Neutral ❍ Agree ❍ Strongly agree ❍

13) I feel valued by the wider community for the work I do in the Managed Isolation and Quarantine Facilities.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
❍	❍	❍	❍	❍

14) Have you been treated unfairly in any of the following non-work situations because you are working in the Managed Isolation and Quarantine Facilities? Have you been treated unfairly…..(please select those that apply to you personally)…..or select "Not applicable to me" below.

❍ in making or keeping friends?

❍ by the people in your neighbourhood?

❍ by people you live with?

❍ in your living or housing arrangements? (ie you have felt pressured to change your arrangements).

❍ by family members?

❍ in finding or keeping a job? (including secondary employment)

❍ in your social life? (socialising, attending events, leisure activities)

❍ when accessing health services? (GP, dentist, hospital appointments, screening programmes etc)

❍ when accessing or purchasing other goods and services? (eg life or health insurance, booking holiday accommodation)

❍ in any area of your life? Please specify.

❍ Not applicable to me – I have not been unfairly treated because I am working in the Managed Isolation and Quarantine Facilities.

15) Are you happy to tell us about a particular experience where you were treated unfairly because of the work you do in a Managed Isolation and Quarantine facility? If "Yes", please enter your comment below. You do not need to identify yourself, your workplace, or anyone else by name.

16) What is the make-up of your household? Please select all that apply. I live with…..

❍ my wife, husband, partner or de facto

❍ my mother and/or father (aged under 60 years)

❍ my mother and/or father (aged over 60 years)

❍ my pre-school children/grandchildren

❍ my school-aged children/grandchildren

❍ my children/grandchildren who have left school

❍ my flatmate/s

❍ Other (please specify)

❍ None of the above – I live alone

17) Have any members of your household/family/whānau or friends been treated unfairly because you are working in the Managed Isolation and Quarantine Facilities?

❍ Yes ❍ No

If "Yes" and you are happy to do so, please explain what happened to your friend or household/family/whānau member. You do not need to identify anyone by name.

18) Have you been treated more positively in any situations because of the work you are doing in the Managed Isolation and Quarantine Facilities?

❍ Yes ❍ No

If "Yes" and you are happy to do so, please provide an example of a time when you were treated more positively because of the work you are doing in the Managed Isolation and Quarantine Facilities. You do not need to identify yourself or anyone else anyone by name.

Please select the responses that best fit what you think for each of the following statements.

19) I have confidence in the infection prevention and control measures in place at the facilities.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
❍	❍	❍	❍	❍

20) I consider my chance of getting infected with COVID-19 (SARS-CoV-2) at work to be:

Extremely unlikely	2	3	4	Extremely likely
❍	❍	❍	❍	❍

21) I am confident I would be well supported by the staff and management of the Managed Isolation and Quarantine Facilities if I were to be infected with COVID-19 (SARS-CoV-2).

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
❍	❍	❍	❍	❍

22) I am concerned about the media/public scrutiny that might occur if I were to become infected with COVID-19 (SARS-CoV-2).

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
❍	❍	❍	❍	❍

23) Have you chosen not to do certain things outside of work hours because you are working in the Managed Isolation and Quarantine Facilities?

❍ Yes ❍ No

If “Yes” and you are happy to do so, please provide an example of something you are not currently doing outside of work hours because you are working at the Managed Isolation and Quarantine Facilities.

24) What do you think the management of the Managed Isolation and Quarantine Facilities does well to assist you in your day-to-day work?

25) What could the management of the Managed Isolation and Quarantine Facilities do better to assist you in your day-to-day work?

26) What, if anything, do you think others (ie anyone such as the public, officials involved with the COVID-19 response, the media etc) could do to support you in the work you are doing?

27) Is there anything else it is important for us to know about your experience of working in the Managed Isolation and Quarantine Facilities?

Thank you very much for taking the time to provide this feedback. Please be assured your responses are anonymous and cannot be linked to you personally in any way.

Please remember that you can discuss any issues you may currently be experiencing with your manager, or access any of the other support services available to you.

https://www.miq.govt.nz/being-in-managed-isolation/isolation-facilities/on-site-staff/

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