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The lived experience of hotel isolation and quarantine at the Aotearoa New Zealand border for COVID-19: A qualitative descriptive study

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\section*{ABSTRACT}

Hotel-based Managed Isolation and Quarantine (MIQ) is a key public health intervention in Aotearoa New Zealand’s (NZ) COVID-19 border control strategy for returning citizens and permanent residents. We aimed to investigate the experience of transiting through MIQ in NZ, to inform future refinements of this type of system. A qualitative thematic analysis method was utilised to explore experiences in depth with seventy-five individuals who had undergone MIQ in NZ between April 2020 and July 2021. Participants were interviewed by telephone or Zoom or completed an online qualitative questionnaire. Interviews were audio recorded, transcribed and coded; questionnaire responses were sorted and coded. All data were subjected to thematic analysis. Three main themes described the key elements of the participants’ experience of MIQ that influenced their overall experiences: 1) The MIQ process, 2) MIQ Hotels, and 3) Individual experience. The variation in participants’ overall experience of MIQ was strongly influenced by their perceptions of how well the MIQ process was managed (including communication, flexibility, and compliance with disease prevention and control measures); and the quality of the hotels they were allocated to (in particular hotel staff, meals and information). This valuable insight into the experience of individuals in NZ MIQ hotels can inform better planning, management and implementation of the MIQ process for NZ and adds to the literature of countries utilising such strategies to minimise the transmission of COVID-19, whilst protecting the well-being of those using the system.

\section*{1. Introduction}

Hotel managed isolation and quarantine (MIQ) is a key public health intervention in Aotearoa New Zealand’s (NZ) COVID-19 elimination strategy and was first introduced on April 9, 2020. All citizens, permanent residents or pre-approved non-residents arriving in NZ by air were required to remain in MIQ hotels for at least 14 days with very limited exceptions [1]. In November 2021 the...
time period was reduced to seven days, plus three days home quarantine until a negative day nine test [2]. NZ has signalled the opening of its borders between February 2022-April 2022. However, at the time of writing, the Omicron variant of COVID-19 is emerging and Delta threat continues to be a significant and severe variant with public health experts calling for a rethink of the planned border opening, including an increase in the MIQ time period to ten days [3]. In NZ, travellers are allocated to a hotel on arrival. People who are not ill but who may have been exposed to COVID-19, such as having had contact with infected people overseas, are placed in the MIQ hotel to enable symptom monitoring and early detection [4]. Confirmed or suspected cases of COVID-19 are placed in quarantine to prevent the spread of the virus. Quarantine hotels have increased health, safety, cleaning measures, and greater guest restrictions. Between March 26, 2020 and August 13, 2021, 162,773 people completed MIQ in one of 32 hotels located within five cities across NZ [5].

In addition to NZ, at least 12 other countries have implemented a variant of the hotel based MIQ system [6]. Concern about the use of such facilities has, to date, focused on system failures and the associated risks and impacts with calls for improvements or alternatives to hotel based MIQ [7]. While there is a small but growing literature exploring the mental health of quarantine hotel employees [e.g. 8] and for COVID patients quarantining in hotels and similar facilities [e.g. 9–11], less is known about the overall experience of travellers undergoing this form of MIQ on arrival at the border. Anecdotally, people have reported mixed reviews of their experience of quarantine from positive or benign, through to distressing. The few studies that have examined the psychological impact of people experiencing facility-based involuntary quarantine report negative mental health impacts, including stress, anxiety, depression, and post-traumatic stress symptoms [12–19].

A recent qualitative study explored experiences of people in hotel based MIQ in Australia and identified infection control risks and other issues, as well as concerns with the layout, amenity and systems of medical care at one of the country’s ‘better’ facilities [20]. A similar study from Uganda reported that planning, management and implementation of the quarantine process were the key determinants of the experiences of individuals in institutional quarantine facilities [21]. Findings of a qualitative study of adherence and wellbeing in returning travellers in the UK highlight the importance of effective, timely communication; supporting and promoting voluntary compliance over coercion; facilitating shared social experiences for those in MIQ; and ensuring that essential supplies are provided [22]. A survey of travellers in Australian quarantine hotels focused on the spatial needs of users [23] and found that having a window that opened, good ventilation and lighting were key to wellbeing.

As this global pandemic heads towards its third year, the reality is that MIQ of some form will be with many countries for some time to come. Although a crucial public health measure, the potential impact of the MIQ experience needs to be better understood by NZ and other countries such as Australia and the UK as they have similar approaches for certain categories of travellers [24,25]. The lack of systematic qualitative enquiry into experiences of people in designated MIQ facilities has been noted elsewhere [20,23,26,27]. This study addresses that gap and contributes to a greater understanding of the impact and nature of MIQ by describing the experience and perceptions of individuals who have lived it and offers insights into the ways in which MIQ could be improved as a key pandemic strategy.

2. Methods

This qualitative descriptive study used a thematic analysis approach including interviews and online survey free text responses. The purpose of the thematic analysis was to explore in detail how participants understood and experienced MIQ. Snowball sampling was used to identify prospective participants, at least 18 years of age. First, a call for people willing to speak to a researcher about their life experiences during and following a lockdown of Auckland in August 2020 went out through social media and author networks. Interested people contacted the first author (LG), by phone or email. An invitation letter, a participant information sheet, and a consent form were emailed and once consent was given, a date and time were arranged for a telephone or Zoom interview due to the alert levels in place and locations of the participants.

An interview guide (Appendix 1) was developed to explore participant experience and views of managed isolation or quarantine, as well as beliefs and attitudes towards the COVID-19 pandemic generally and the NZ government’s response to it. The interview guide was standard for all interviews except the community organisations, which included additional questions relevant to MIQ.

In-depth semi-structured interviews of between 45 and 60 min duration were conducted by trained interviewers (LG, AP, CB and RG) with thirteen individuals who had undergone MIQ in NZ between April 2020 and June 2021. Interviews were conducted by telephone or by zoom. All interviews were audio recorded.

A qualitative online survey was completed by sixty-two individuals in June–July 2021 when one of the authors (LG) was in MIQ herself and used the opportunity to call for participants currently or recently completed MIQ through a social media page specifically for returnees to NZ (group name MIQ: NZ Managed Isolation and Quarantine a private group with 7.7k members). A link to the information sheet, consent and survey tool in Qualtrics with information sheet and consent form embedded in the survey was provided. The survey questionnaire (Appendix 2) was designed based on the interview guide (Appendix 1).

This research was approved by the University of Otago Human Ethics Committee (ref: D20/219).

2.1. Data analysis

The thematic analysis method is driven by open free text responses which produce data that can be different from one participant to
another (unlike a set of options in a quantitative survey) and the themes identified are not mutually exclusive to one theme, reflecting the complexities and inter-dependencies. Audio tapes were professionally transcribed and uploaded to Dedoose™, a web-based qualitative and mixed-methods data analysis application (https://www.dedoose.com).

Analysis of the transcript data followed the recommended phases of thematic analysis described by Braun & Clarke [28–31]: data familiarisation, data coding, theme development and revision through reflexive thematic analysis and an iterative coding approach. This flexible method for identifying and analysing patterns of meaning within data is well suited to small data sets [29]. The first round of analysis, which generated 34 initial codes was conducted by CM. These codes were refined into 16 codes (CM and LG), which were then grouped into three primary themes and 13 subthemes through a process of discussion and consensus with other members of the research team who reviewed the data. A second round of analysis using the survey responses confirmed the three primary themes identified in the initial analysis with the addition of 2 subthemes. The results section outlines the basic demographics of the participants followed by the three primary themes and sub-themes that were derived from the full data set.

3. Results

All but one of the participants entered managed isolation following arrival in NZ from overseas. One person entered quarantine after contracting the virus in the community. The participants (61 female, 14 male) were aged between 20 and 68 years. They were accommodated in eight separate MIQ hotels in five cities, one participant was not a returning traveller and went direct from the community to the quarantine hotel during the August 2020 Auckland outbreak. Two others were transferred into quarantine after declaring symptoms or having been a close contact of a positive case in MIQ. All were in MIQ between late April 2020 and July 2021. Four of the interviews were conducted near the end of the participants’ MIQ stay (1–3 days before leaving), six shortly after participants left MIQ (five within 4 weeks, one within 8 weeks) and one person was interviewed some months after leaving MIQ.

Most (n = 45) of the survey participants completed the survey within 1–14 days of entering MIQ. Twelve participants completed surveys within 6 weeks of leaving MIQ and 5 participants completed between 4 and 6 months after leaving MIQ. All survey respondents were in MIQ during the first seven months of 2021. Table 1 provides a summary of participant characteristics.

Three primary themes were derived which capture the lived experiences and perceptions of the participants during MIQ. No new primary themes were identified following additional interviews conducted in early 2021, or from the survey responses, confirming the themes: The MIQ process; MIQ Hotels; and Individual experience. These themes are discussed below and supported with illustrative

Table 1

|                         | Interviews (N = 13) | Surveys (N = 62) | Total (N = 75) |
|-------------------------|---------------------|-----------------|---------------|
| Sex                     |                      |                 |               |
| Female                  | 10                   | 51              | 61            |
| Male                    | 3                    | 11              | 14            |
| Age-group (years)       |                      |                 |               |
| 18–25                   | 1                    | 7               | 8             |
| 26–35                   | 4                    | 17              | 21            |
| 36–45                   | 4                    | 13              | 17            |
| 46–55                   | 2                    | 10              | 12            |
| 56+                     | 2                    | 15              | 17            |
| Ethnicity (total count*)|                      |                 |               |
| European/NZ European    | 9                    | 45              | 54            |
| Maori                   | 1                    | 4               | 5             |
| Pacific                 | 2                    | 1               | 3             |
| Asian                   | 2                    | 8               | 10            |
| All other               | 1                    | 9               | 10            |
| MIQ location            |                      |                 |               |
| Auckland                | 8                    | 34              | 42            |
| Hamilton                | 5                    |                 | 5             |
| Rotorua                 | 2                    | 9               | 11            |
| Wellington              | 3                    | 1               | 4             |
| Christchurch            | 13                   |                 | 13            |
| Arrived from            |                      |                 |               |
| United Kingdom          | 3                    | 20              | 23            |
| Asia                    | 1                    | 16              | 17            |
| USA                     | 2                    | 8               | 10            |
| Europe                  | 7                    |                 | 7             |
| Middle East             | 2                    | 3               | 5             |
| Australia               | 3                    | 3               | 6             |
| Pacific                 | 1                    | 1               | 2             |
| Canada                  | 1                    |                 | 1             |
| South America           | 1                    | 1               | 1             |
| South Africa            | 1                    | 1               | 1             |
| New Zealand             | 1                    | 1               | 1             |
| Not stated              | 1                    |                 | 1             |

* Participants were not limited to the number of ethnicities they could state, the most provided by any single person was three.
quotations from transcripts and survey responses.

3.1. Theme 1: the MIQ process

There was strong support for the NZ Government’s response to the pandemic generally, especially when compared to countries at the point of departure. Most participants accepted the need for MIQ and many viewed the overall MIQ process as excellent or good, with no major improvements needed as participants I1 and S3 describe below.

“I think it’s been a good operation. I mean obviously nothing can be perfect but … it seems it was really smooth … my overall impression was I thought it was well run” I1

“MIQ Hotels and facilities are pretty much well set up and over a year of experience sure they’re doing well” S3

However by July 2021, some dissenting voices were evident from survey respondents relating to the requirement to enter MIQ, in particular for those who are fully vaccinated and/or coming from ‘low risk’ countries. Participants questioned the duration of the MIQ period and/or the need to stay in a MIQ hotel, preferring an option to isolate at home, perhaps with the support of a GPS tracking system or similar as discussed in the following narratives

“We don’t need MIQ. We need the Government to step up fast with vaccinations. 2 weeks of incarceration is completely unnecessary for vaccinated people with a genuine negative COVID test” S63

“Frankly the whole thing is a farce from start to finish and now needs completely redesigning so I don’t really know where to start. The government forcibly detaining so many people with in many cases little reason is truly bizarre, I hope that in the future we will look back on this and wonder what they were doing” S13

“Bearing in mind I travelled from Iceland which has less COVID than Australia/NZ and I am fully vaccinated here in NZ so why should I spend 14 days in isolation? This needs revisiting. I can live in isolation at home and would gladly do so after 7 days and with some sort of electronic monitor on me” S15

The most stressful thing for some participants about being in MIQ was the preparation for and challenges of getting back to NZ, including navigating the booking/voucher system and leaving loved ones behind.

“The booking system, I work 8 weeks on and 8 weeks off and you cannot have 2 slots in MIQ booked at the same time. This does not work when dates are now released so far in advance” S27

“Booking system is terrible and failing … We applied through Emergency route, but it was taking too long, and despite it being for emergencies, it’s only open during business days and could only apply 14 days before return date” S54

“it was incredibly stressful … moving back home, leaving friends and [family] behind” I2

There were mixed views about MIQ processes upon and following arrival, both in terms of how well these were understood and how well they were managed. Issues were identified from the outset on arrival at the airport and transfer to MIQ hotels, checking in, during the stay and through to leaving MIQ. While many participants felt that the arrival and transfer were well managed, others were surprised by aspects of the process, such as a lack of compliance with physical distancing, the length of time it took, being asked the ‘same’ questions multiple times, and a general sense of disorganisation.

“Pretty smooth. Went through back corridors at Auckland airport to the health screen, then to passport control, then customs, then onto the bus … it took two hours to make it through screening. Social distancing was terrible” S8

“… we had to wait 2 hours for the flight before us to be processed. We had no food or water. We then were hedged into lines unable to social distance …. Finally boarded our flight to Christchurch with random boarding passes. I didn’t make it to my room until 5:30pm - 9.5 hours after landing and 24 hours since I boarded the flight in LA” S34

Almost one-third of the participants were transferred from Auckland airport to MIQ hotels in other cities by bus or domestic flights. Almost all were not told of this until they had landed or disembarked the aircraft. For some, not knowing their final destination added stress and discomfort to an already stressful process. This was also cited as an example of an MIQ system with no individual choice or options.

“Giving us information about our MIQ location before we depart would be really helpful. Also - why fly us to South Island when we live in North Island (I get the capacity thing) but surely we didn’t have to get on another plane. Having to wait another 6 hours after a tiring flight was difficult” S30

“Being assigned a hotel and location [in advance] definitely helped me … It took some of the anxiety away. In a situation where I have no control or choice, it was nice to be prepared in advance” S37

The lack of prior knowledge about the location of the participants’ MIQ facility in NZ has some negative impacts, such as not being able to prepare mentally or make arrangements relating to onward domestic travel and the delivery of family care packages. One-third of survey respondents (20, 31%) reported no or low impact of not knowing in advance, over half (37, 58%) felt that it did impact through increased stress and anxiety or reduced ability for advance planning and preparation.
“It was ok – might have been nice to have known in advance so I could arrange delivery of snacks etc but honestly not a major problem. I
can understand the need for flexibility in assigning people and it did not cause us any problems” S6

“I did a lot of research, and learned that each and every facility offered different services and supplies and experiences, so not knowing
where I was going made preparation challenging” S5

“Not knowing if my support network would be nearby was stressful. Not knowing what my onward travel would be/how I would get
home” S25

Some participants were disappointed by what they saw as a lack of support when leaving MIQ and this was given as further
evidence of an inflexible, impersonal system.

“They’re not taking us back to the airport like it said in the documents they would. We just get kind of booted onto the street … They’re
like oh well can you walk to the bus stop, … and … I mean I can’t. I can’t carry huge bags” I3

“The only thing lacking is the procedure for leaving on the last day. They ask where we are going but don’t tell us what will happen” S64

The most common suggestions for improvements to the MIQ system related to the need for better communication and information.
Many of the survey respondents felt the information provided was good, including the official welcome and information pack (MBIE,
2020c). Most reported having received the official pack and while some said it contained useful information, others did not read it
thoroughly, if at all. Concerns were raised that suggested a lack of consistency between hotels and for some, the volume of information
on arrival was a little overwhelming.

“A lot of info! A facility welcome pack was well done and comprehensive. S48”

“I didn’t really look at it to be honest. I didn’t particularly feel the need for it” I5

“I thought it was really good. I thought they did a really good job … I was really impressed actually I’d have to say, I was impressed that
that was done” I6

“Not enough about how the hotel worked, we just had to figure it out i.e. Laundry, ordering meals” S52

I received a large pack of information … It was a lot of info to be bombarded with after travelling for nearly 48 hours” S58

The official information that was provided was in English. Two of the participants needed to translate this for family members who
were not English speakers.

“I came together with an elderly relative of mine … She couldn’t understand or speak much English. I did most of our communications and
translations” I9

While many thought that the information they received at the hotel was adequate, if not very good, participants said there were
simple pieces of information, such as being able to order food in, get cleaning materials, or request a proper knife and fork, that would
have been helpful to know but that they only heard about from online forums or fellow guests, rather than any official information
source. This included information about restricted items, such as alcohol bought off site. For example, a participant who ordered a
vegetable knife with groceries was surprised when it was confiscated as they had no information about this.

“I belong to a Facebook forum [New Zealand Hotel Quarantine] of people asking ten million questions that are not answered anywhere
on the Government’s website … Just helpful little tips or that you can ask for a vacuum cleaner if your room’s getting really filthy. Nobody
tells you that, it’s not in the instructions or anything” I3

“The Facebook groups prepared us well. Perhaps official help would have been good. A friend in MBIE (Ministry of Business, Innovation
and Employment) sent me tips which duplicated the Facebook groups” S23

3.2. Theme 2: MIQ hotels

The overall experience of MIQ as reported by the participants appeared to be strongly associated with the hotel they were allocated
to. Participants who felt that their needs were well catered for were more positive about their overall experience. The variability
between hotels was noted by a number of participants and this was illustrated by the wide range of feedback about the hotels in terms
of the adequacy of rooms.

“I know everyone’s experience in the hotels are different, I think we got really lucky with this one. Maybe some more streamlining
between hotels would ease peoples’ concerns” S59

“Two double bed in the room so the space is quite large and comfortable. The hotel provide cutlery and microwaves which is really kindly
to reheat the meal. Everything you need can be requested to the front desk and they will place it in front of the door” S43

“Small, Dated, Stinky, Dirty. I hated every minute of this place” S28

“Lack of fresh air is the key [issue]. Need windows that open” S50

The variability between hotels was also raised as an equity issue, with participants noting that the cost of the MIQ stay was the
same, regardless of the quality and location of the facility.
“I think the charging system needs refining. being charged the same as people staying in 5[star] accommodation is not OK”  S13

Just glad to be home. Luckily, we fall in the bracket who don’t need to pay directly for this stay. So I am grateful for what I do get. However, If I was paying what they were charging for this level of stay I would be mortified. I would be very bitter toward the system, especially because hotels don’t seem to be being audited to meet a certain standard, S24

Staff appeared to play an important role in participants’ overall perception of the hotel and their experience there.

“The staff and the people who we had to interact with, which was the Army Reserve, security firm, the people who delivered the food and the hotel staff on the phone, the laundry people ... they were amazing, yeah, everybody was really kind and sympathetic. They were really nice, they were really lovely. I found everybody really good” 16

“The nurses, NZDF and hotel staff could not have been more polite and helpful. The Air NZ Flight team need to have manners, respect and patience. We are human beings.”  S45

“A bit more regulation and sharing of ideas between hotels. Some hotels seem to have some amazing staff with creative ideas and a platform for hotels to share on might help encourage other teams to implement some of those good ideas” S24

A prominent factor contributing to how the overall MIQ experience was reported was the quality of meals provided. Some found the food to be of ‘restaurant quality’ but for others the quality of the meals and the lack of food choice was the biggest concern they had during their stay in MIQ. The lack of choice, the paucity of fresh fruit and vegetables, and the timing and temperature of the meals was noted, even by those who thought the food was generally very good.

“The food is absolutely amazing! I have been very impressed with the selection so far and if not needed to order a single thing. Extremely happy in this area.” S47

“OH MY GOD WHERE TO START ..... IT WAS FABULOUS. The food quality and quantity and variety. Everything was hot enough and very tasty … I mean honestly we hit the jackpot staying here” S21

“Quality of food was not good. Variety was not good ... I had to order Uber eats most nights ... Three times my food was forgotten or delivered to the wrong room” S46

Food was beige all the time, I took photos to send to my family to see if they could spot any vegetables. occasionally there would be a stray carrot stick or broccoli floret that had got lost and ended up in my styrofom tray!! It was heavily processed and full of fat and especially sugar. They would also call you for COVID tests as soon as meals arrived. S13

There is a 1 week meal rotation. Honestly, it needs 2 be different for the 2 weeks. It’s not like normal where people are living normal lives. The food tends to mark the times of the day and it’s kind of the highlight.”  S24

Some participants ordered food and other supplies online or had family provide these when restrictions allowed. There appeared to be significant variation between hotels in terms of making people aware of this option and with respect to what was supplied in rooms, such as microwaves and cutlery.

“Very comfortable room and some nice touches to make it more welcoming. Loved the crockery, cutlery and microwave” S14

“Unfortunately food was often luke warm by the time it got to me, hence why a microwave would have been really handy” S17

“Food quality good but usually tepid Need a microwave or way to heat it up Timing not great SS0

Some participants reported that the hotel staff managed their special dietary requests very well, others raised concerns around this issue, including the dietary needs of young children.

As being a Taiwanese who haven’t been to New Zealand for a long time, it’s quite hard to get used to those western food” S43

“I pretty much didn’t eat the food that was provided and for [child] I made sure he had adult meals ... they did have a kids menus but it was fried chips ... I wouldn’t feed it my dog to be honest” 113

“I put in a request for a vegan food and they’ve been great about it. Have had really delicious food” S39

“Food is pretty good. But caterers appear to think that vegetarians eat lots of carbs and not much protein! ” S38

There was also inconsistency in how linen and cleaning was managed at the hotels. For example, in some hotels staff changed the bed linen, in others that was done by the guests. Concerns were also raised about the cleanliness of rooms and general surroundings.

“I just think the state of the room when I first went in it was definitely not that clean. There was rubbish behind the curtains, there was that black mould down the edges of the windows, it was really awful” 14

“... my mum actually brought us a stick vacuum cleaner ... and had it sent to the hotel for us and we wouldn’t have been okay without it and I thought of other people who have had to just live in their crumbs and that’s just not cool” 112

The rules around COVID-19 measures in the hotels, such as physical distancing and mask wearing were clear, generally understood and followed by most people, but not everyone. In particular, the rules around exercising outside did not appear to be uniformly enforced.
“... it’s been great seeing PPE constantly. I’ve been really pleased to see that and I haven’t seen any protocols being broken” 110

“I’m going from a managed isolation facility... into a full on quarantine... so you would think that their biosecurity and their barrier protocols would be a whole lot more robust or adhered to by the staff but they weren’t. So I was, it freaked me out a little bit” 111

“Entry and exit to exercise area was the same. You met people in the doorway and hallway. Impossible to keep a distance. Brushed past people” S16

“Seemed like... there was no real control... There was somebody just standing on the gate... different guards, were just standing there watching and watching the smokers, chatting to the smokers mostly” 14

Participants’ experiences of medical or health care were also mixed and reflected variability across and within hotels. Some were concerned about apparent inconsistency in care, and about receiving the appropriate level of care if needed. These concerns appeared to be related primarily to interactions with individual medical personnel and inconsistency in how protocols and rules were applied.

“Some of the nurses were amazing and others were absolutely diabolical” 111

“but I mean if things were going badly like I guess they’re not gonna take me out of here unless its life threatening... I don’t think [having a doctor visit] is an option” I3

I asked the nurse for Panadol, she turned to me and said that I should have brought my own supply of Panadol to the hotel! ... I was surprised with this response from the nurse and was grateful that I only needed tablets once” I8

Many participants were impressed by what they saw as a holistic approach to health and concern for individuals beyond COVID. Other felt that there was insufficient support around mental health and wellbeing. In particular, views about the Wellness Teams varied dramatically.

Staff have been great and the wellbeing team have been exceptional along with the nursing team too. I requested medication due to severe anxiety and they got me access to it and arranged phone calls between me and a doctor” S49

“The nurse team is excellent. I have never came across excellent and professional people like the nurse team here. Wellbeing [team] is great” S33

“There was a reference in some of the documentation that we got to a wellness or wellbeing team or something along the lines of that but we didn’t hear from them at any point... when we entered MIQ, I put down that I was already on medication for anxiety” Int12

The need for emotional support was especially pertinent for those entering MIQ following a period of high stress, such as those grieving the loss of a family member. Some participants reported that MIQ isolation exacerbated existing mental health issues.

“I had to organise coming very quickly as my father died suddenly. It’s been incredibly stressful... I didn’t find the wellbeing team very helpful - felt like they were just reading a script and would not have been able to actually help... Some emotional support would have been nice” S19

“Having already lost mum before I headed back to NZ, my dog had to be put to sleep while I’m in here and I have never felt so alone” S30

“I suffer from depression so sitting in a small room for 2 weeks reintroduced bad sleep hygiene and a feeling of loneliness” S9

The process for and rules around COVID-19 testing were seen as straightforward and clear. Most participants were supportive of testing and did not have major concerns about it.

I do not agree that people should have any fear about going for a test. A positive test should not be an embarrassing finding for the family as it is important that we go hard to arrest the virus “19

“The COVID tests are challenging. Very invasive, more so than other tests we have completed” S54

However, not all participants felt that they received their test results in timely manner and some felt that this aspect be significantly improved.

“I have HUGE complaints about the COVID testing... they never give us the results of our COVID... It’s really not good enough. Sharpen up NZ!! You have a tiny handful of cases to manage at the border so testing times should be consistent and much quicker” S32

“I was never rang and informed of the results of my COVID-19 tests, which I would have been grateful for” S58

3.3. Theme 3: individual experience

For some participants their stay in MIQ was a negative experience, due primarily to the quality and location of the hotel, a perceived lack of support, and related health concerns. Others found the experience more challenging than expected, especially compared to being in Lockdown level 4. Many participants thought it was easier than they had expected, it was even a positive experience for some.

“... it was a complete nightmare and the most dehumanising experience I have ever had” S63
“I have used the time to relax after months of stress organising to leave the UAE. I am enjoying the time to get over my jet lag and start the process of buying a car, finding somewhere to live etc.” S35

Finding ways of passing the time did not appear to be a major problem for participants, especially those who had work to do and/or had planned ahead and had downloaded material on devices, brought books or handiwork to do.

“Personally my time in isolation was wonderful and not stressful because I was prepared mentally to come into isolation … and I made sure I had some handiwork to occupy my time” I9

“We were well prepared for this, viewing it as a holiday and an enforced rest. It has been the perfect transition from our previously extremely stressful life” S23

Internet access, an important tool for helping pass the time, was poor in some hotels. This created problems for some as it restricted their ability to work, access resources and stay in touch with friends and family.

“Wi-Fi was available and it was really nice. The speed was great… to get contact with our other family members while in other rooms we were video calling and other family members who are in Christchurch” I7

The Internet keeps dropping out, and the lack of sky tv channels for what they say is a 4 star hotel S27

“[Need] basic facilities standard across all [hotels] such as a desk and screen for working from. I could have been working from here but would not have been comfortable or easy” S31

The ability to engage in some form of exercise, albeit limited by compliance with COVID-19 measures, was important for many of the participants. While all knew about the option to walk outside, not all did so. For some, this was due to fear, for others it was related to the frustrations of the exercise booking system.

“I did exercises every day and I had taken a yoga mat with me … and then I would take advantage of going down to the carpark for a walk … I couldn’t believe people weren’t getting out to get some sunshine” I6

“Supposed to have two daily slots outside of around 40 minutes. But this could be 7 am or 9 pm … We marched around a carpark … Not allowed to run or do anything except walk. Seemed ridiculous. Guards watching, and whistling if we got too close” S50

“Chose not to use the exercise facility as can see the patch of concrete from our window and it is sometimes too crowded … Wanted to reduce any risk of contracting COVID” S64

The ability to exercise was limited in some hotels by lack of open spaces. This also posed a problem with separating the exercise and smoking areas. There was also inconsistency in how the exercise rules were applied, such as the hire of fitness equipment.

“My children did NOT want to walk around in circles in an undercover carpark!!!! If children are involved, there HAS to be suitable outside time. We got to play in the carpark once when it was just us in 15 days. It was rubbish” S12

“I was allowed to book a daily 30 min deck walk, or a parking garage walk that smelled of cigarette smoke. I’m a runner and found this lack of exercise to be the most challenging part … I begged to be allowed to rent exercise equipment … but they said no” S5

In addition to the challenges noted in the previous themes, participants raised a number of other issues and concerns. Some of these related to being in isolation with other people. Due to the size and configuration of the rooms, it was not always possible for children to be in the same room or as their parents, or even in adjoining rooms. While many felt supported by staff, this was a major issue for some families.

“We have 2 separate rooms which doesn’t work for us because our children are young (4 under 7) so can’t exactly send them next door by themselves” S29

“MIQ with young children is a nightmare!!! My boys are 2 and 6 and they were going stir crazy. I was alone with them, trapped inside” S12

While sharing MIQ with family members created challenges, it was also a source of support for those who could share the experience with others in their bubble. Support from friends and family outside of the MIQ hotel was especially important.

“So it’s really lucky and we have each other [in adjacent room] because we’re in the same bubble” I1

“I talked to family members multiple times a day … it helped to have those connections on the outside to get me through it and just be able to have the open, frank conversation about how I’m feeling, my emotions, stuff like that” I10

Concerns were also raised about how the pandemic generally, and how being in MIQ specifically might impact their families. Some reported that family members, especially children and grandchildren were anxious and missing them. Others felt that the MIQ had little or no impact on their family as they had not been in NZ anyway.

“My son .. he was worried the whole time but where I could get internet I’d ring him periodically” I4

“it was very difficult because there were a lot of unknowns … The conversations were all about me and what would become of me and in my absence my family had to face insecurity” I8
“so it hasn’t put an added stress on them that you’re in managed isolation not much added stress is just … like we’re not in the country” I1

A key stressor for some participants was the negative, stigmatising portrayal of returnees in the media as posing a risk to the country, being a drain on the economy or in some way taking advantage of the hard work the ‘team of 5 million’ had done.

“when I was overseas … we felt really picked on by New Zealanders, your team of five million, felt very exclusive and a lot of negative comments in media” I3

“I did feel that the welcome speech when we arrived at the hotel was a bit off. told how lucky we were to be joining the team of 5 million and how everyone in New Zealand had done the ‘hard yards’ so that we could enjoy it … I appreciate that NZ has done a good job … but majority of the people on the bus had come from countries … that had been in pretty much constant lockdown for over a year. I didn’t appreciate his sentiment at all” S8

“Always felt embarrassed telling people we had just done MIQ - even a month after being free to roam in Auckland! Was always worried about being judged for either still being contagious or for scrounging off taxpayers” S9

While participants generally felt relieved, even privileged, to be in a country where the pandemic was largely under control, some felt that New Zealanders are too complacent about the risk of community transmission and potential escalation of the pandemic here.

“Ideally I would have liked it if I got back in the country whilst we still had no community transmission, yeah? This is my main concerns at the moment are … hopefully everyone is still cautious enough that the number of cases still drop, but I’m quietly apprehensive about that” I2

“I came from a COVID free country. I found it hard that I was put in a facility with people coming from High Risk countries” S46

4. Discussion

This study explored experiences of seventy-five individuals in MIQ in NZ and identified three main themes that described their experiences and perceptions. Our findings are consistent with similar studies from Uganda [32] and the U.K [22] in highlighting the key role that the management and implementation of the MIQ process has in determining whether the experience is negative or positive. While participants were supportive of the need for MIQ, even those who viewed the experience as generally positive raised concerns and identified aspects of the system that could be improved. Issues ranged from what could be called minor annoyances to significant stressors that impacted on the overall MIQ experience. Our findings reflect what has been consistently presented in the media, the experience of MIQ for people returning to NZ is highly variable. While some have reported experiences far more positive than they had expected with good facilities, staff and food [33,34]; others have reported ‘horror stories’ of their time in MIQ [35,36]. In this study, the variability in participants overall experience of MIQ was strongly influenced by their perceptions of how well the MIQ process was managed (including communication, flexibility and compliance with disease prevention and control measures) and the quality and appropriateness of the hotels they were allocated to (in particular hotel staff, meals provided, information and internet access). These factors have been identified as key determinants for wellbeing in previous studies [20,22,23].

Based on the findings of this study we make the following observations and suggestions to optimise the experience of those in MIQ hotels and reduce the negative impacts of MIQ experiences:

- It is imperative that the MIQ process is well managed and implemented according to standardised procedures; from the first encounter on arrival at the airport and transfer to the MIQ hotel through to when people leave. A poorly managed pre-MIQ process does not provide people with confidence in the system and sets negative expectations for the remainder of the stay.

- Communicating accurate and consistent information in a timely manner is vital to helping people prepare for and cope with their MIQ experience. This was also highlighted by Carter et al. [22] in their UK study. Communications must include adequate information prior to departure and on arrival at the airport and hotel. Information should be clear on how test results can be obtained, and these should be provided as quickly as possible to reduce stress arising from uncertainty. It is also important that people have a clear and accessible channel for providing feedback other than the Hotel Management.

- The high degree of variability in the hotels used for MIQ must be addressed. This was a major determinant of the differences in the lived experience of those in MIQ. Where necessary, hotels should be trained and supported to ensure they meet agreed standards in the services provided and that prevention and control measures are consistently enforced. In particular, it is important that there is greater flexibility in the provision of appropriate and healthy meals, accommodating those with special dietary or cultural requirements wherever possible. Greater consideration also is needed for accommodating and supporting families, especially large groups, during MIQ.

- All individuals in MIQ must have access to appropriate health care and should be fully informed about how to access medical care if needed. Inconsistency in the provision of health care, especially mental health care, is concerning and must be addressed. This may require closer attention to the recruitment, training and oversight of MIQ medical staff.

In the course of this study a number of changes have been made to the MIQ process. In November 2020 the Managed Isolation Allocation System (MIAS) was implemented to manage the flow of people entering MIQ. Travellers are now required to have a MIAS voucher before flying and most can voluntarily confirm their place in MIQ online [1]. People using the MIAS can note dietary requirements, accessibility considerations, request double or twin rooms, and list any other needs or requests. The intention being that with such information in advance, hotels can better support the different requirements of those in MIQ [1]. Despite such changes, returnees still have no say in the location or hotel they will be allocated, a key stressor identified by participants in this study. The
length of time between landing and setting foot inside their MIQ hotel, onward travel arrangements and reuniting with family upon completion of MIQ were related issues for most participants. These are likely to continue to be frustrating or stressful for some travellers.

At the time of finalising this paper, the government announced a pilot scheme to take place from October to December 2021 in which vaccinated workers will travel overseas and then self-isolate at home. The purpose of the trial is to explore how an alternative to MIQ could work for travellers who have been in countries deemed “medium risk” [37]. Such changes may go some way towards dealing with a number of the issues raised in this study but only time will tell if this proves to be the case. Widespread and continuing criticism of the MIQ processes, and the booking system in particular (e.g. Foxcroft) [38] suggests that problems are likely to continue. There remains a need for continual monitoring, feedback and refinement of the MIQ system to ensure that while it meets the needs for protecting the NZ population, the negative impacts to those experiencing it are minimised.

In light of better understanding of the airborne and droplet nature of transmission [39] and several recent instances of COVID-19 transmission within MIQ hotels [40], the study participants’ accounts of close contacts between guests and inconsistent use of face masks are concerning. Additionally, the participants in this study highlighted the inconsistencies of housekeeping arrangements in MIQ hotels. We urge a review of the housekeeping arrangements across all MIQ hotels, in particular the vacuuming of rooms by staff or guests and the process for bed linen changes as this may present a number of potential risks in relation to transmission that have not yet been considered.

4.1. Strengths and limitations

To the best of our knowledge this is the first study conducted with people who have been in MIQ in NZ. Collection of data in real time (during or very soon after MIQ stay) reduced the potential for recall bias. A strength of the study is that the study included 75 participants, a large number for a qualitative thematic analysis. This is also a limitation as it is not possible to generalise the research results across large populations. However, the benefit of this qualitative research is that details about experiences and processes could be elucidated, resulting in the identification of three strong themes. Participants in this study were predominantly women (n = 61:14). Some were travelling with partners and children and reflected upon other family member experiences in their responses. The use of five different interviewers adds to the independence of the themes observed. The findings of this study are congruent to the small number of international research projects conducted on MIQ to date.

5. Conclusion

Findings from this study provide a valuable insight into the lived experience of individuals who stayed in MIQ hotels in NZ during the COVID-19 pandemic. The present study highlights deficiencies in information provision, discrepancies between processes and variabilities between services offered by MIQ hotels. Such research, largely absent in the current literature, can inform better planning, management and implementation of the MIQ process which is crucial to improving the experience of individuals in MIQ while optimising prevention of COVID-19 transmission within the system.

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Contributions

LG, CMcD, AK, MGB Study conceptualisation and interview schedule design. AP, RG, VP, JB. CMcD, LG Literature search and data coding. LG Ethics application. LG, AP, RG, CB, AR Qualitative interviews. LG, CMcD, AK, MGB Interpretation of results. AP, VP, JB. LG, CMcD Initial manuscript drafting and revision. All authors contributed to and agreed the final manuscript.

Declaration of competing interest

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Appendix 1

Semi Structured Qualitative Interview Guide for MIQ.

These are not intended to be individual questions to participants they are a guide to the interviewer.

What kind of quarantine/self-isolation did you experience (e.g. self-isolation at home, isolation at a managed facility,
quarantine camp, quarantine hotel, or hospital)?

- When was that?

What was the reason for you to be quarantined/self-isolated (e.g. close contact with people who were infected, travel history or something else)?

How was your general experience of the quarantine/self-isolation (e.g. good or bad, and why)?

- Did you understand the process from the very beginning?
- What information/guidelines/instructions did you receive (where did you get it? Was it useful/helpful?)

Did you experience any major challenges during the quarantine/self-isolation? If yes, what were they?

- Were those challenges related to personal or institutional issues?
- Did you ask for any help/support to cope with these challenges? (if so who and when did you ask? What kind of help did you ask for?)
- What help did you get? (was it useful? Was there any other help you would have liked?)

If you were in Aotearoa New Zealand during Level 4 lockdown, how did your quarantine/self-isolation compare to lockdown? (Easier, harder etc).

Any suggestions for how quarantine/self-isolation processes could be improved in the future?

Appendix 2

Online Qualitative Survey.

When did you arrive into New Zealand and MIQ?

Which MIQ facility you are in (name/city)?

Where did you depart from and transit through on your way to New Zealand?

When did you learn which MIQ facility you would be staying at?

How did the timing of knowing which MIQ facility you would be based at, impact you?

What was the transit process like from your arrival airport to your MIQ facility (e.g. wait, bus, flight, luggage, social distancing)?

Tell us about your MIQ room facilities experience (e.g. comfortable, adequate, too small)?

Tell us about your experiences relating to the supplied food and beverages at your MIQ facility (e.g. quality, quantity, variety)?

Tell us about your experiences relating to the exercise facilities available during your stay (e.g. where, when, adequate)?

What has been positive about your experience in MIQ (e.g. staff, facility).

Tell us about the information you received on arrival at your MIQ facility and during your MIQ stay (e.g. enough, too much, not enough)?

What are any challenges, in addition to any you have already mentioned, that you are willing to share?

Do you have any suggestions for how quarantine/self-isolation processes could be improved in the future?

Is there anything else you would like to say about your MIQ experience?

References

[1] Ministry of Business, Innovation & Employment, Managed Isolation and Quarantine. Website, MBIE, 2020. https://www.miq.govt.nz/.

[2] New Zealand Government, First Steps in Managed Isolation Changes; Expanding QFT with Pacific. Official website, 2021. Available at, https://www.beehive.govt.nz/release/first-step-managed-isolation-changes-expanding-qft-pacific. (Accessed 16 December 2021).

[3] D. Satherley, Coronavirus: Expert Calls for Border Reopening to Be Postponed, Fully Vaccinated to Be Redefined, Newshub, 2021. Available a, https://www.newshub.co.nz/home/new-zealand/2021/12/coronavirus-expert-calls-for-border-reopening-to-be-postponed-fully-vaccinated-to-be-redefined.html. (Accessed 16 December 2021).

[4] World Health Organization, Considerations for Quarantine of Contacts of COVID-19 Cases: Interim Guidance, vol. 19, WHO, August 2020. No. WHO/2019-nCoV/IHR_Quarantine/2020.3). World Health Organization.

[5] New Zealand Government. COVID-19 data and statistics. Official website. https://covid19.govt.nz/alert-levels-and-updates/covid-19-data-and-statistics/#covid-19-cases page updated 13 August 2021.

[6] A. Cathbertson, COVID-19: How Does Hotel Quarantine Work in UK and How Does it Compare with Other Countries? Sky News, 2021. Available at, https://news.sky.com/story/covid-19-how-will-hotel-quarantine-work-in-uk-and-how-does-it-compare-with-other-countries-12198716. (Accessed 18 December 2021).

[7] L. Grout, A. Katar, A. Kvalsvig, M.G. Baker, T. Blakely, N. Wilson, Failures of quarantine systems for preventing COVID-19 outbreaks in Australia and New Zealand, Med. J. Aust. 215 (7) (2021) 320–324. https://onlinelibrary.wiley.com/doi/10.5694/mja2.51240,

[8] Y.M. Teng, K.S. Wu, W.C. Wang, D. Xu, Assessing the knowledge, attitudes and practices of COVID-19 among quarantine hotel workers in China, Healthcare 9 (6) (2021), 772, https://doi.org/10.3390/healthcare9060772.

[9] S.A. Alhamidi, S.M. Alyousef, Perceptions of the phenomena of quarantine as experienced by Saudi Arabian COVID-19 patients, World Family Med. 18 (12) (2020) 82–90, https://doi.org/10.5742/MEWFM.2020.93914.

[10] S.N. Mansoor, Z.A. Gill, F.A. Rathore, K.M. Ultra, Establishing and managing a quarantine and isolation centre in COVID-19 pandemic, J. Pakistan Med. Assoc. 70 (Suppl 3:5) (2020) S11–S14. https://www.jpma.org.pk/supplement-article-details/506.

[11] R.Z. Shaban, S. Nahidi, C. Sotomayor-Castillo, C. Li, N. Gilroy, M.V. O’Sullivan, T.C. Sorrell, E. White, K. Hackett, S. Bag, SARS-CoV-2 infection and COVID-19; the lived experience and perceptions of patients in isolation and care in an Australian healthcare setting, Am. J. Infect. Control 48 (12) (2020) 1445–1450, https://doi.org/10.1016/j.ajic.2020.08.032.

[12] A.A. Alkhamees, M.S. Aljohani, M.A. Alghesen, A.T. Alhabib, Psychological distress in quarantine designated facility during COVID-19 pandemic in Saudi Arabia, Risk Manag. Healthc. Pol. 13 (2020), 3103, https://doi.org/10.2147/RMHP.S284102.
