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# "*It is a different type of policing than in the bush*": Police officers' perceptions of the differences in enforcement of the phone use while driving legislation in rural and urban areas

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ABSTRACT

Mobile phone use while driving continues to be a significant road safety concern, despite the severe legal countermeasures to reduce this behaviour. Phone use while driving-related crashes have been demonstrated to be an issue in rural areas, yet research into the impact of legal sanctions on phone use while driving has primarily focussed on urban areas. Therefore, this study aimed to investigate differences in enforcement of phone use while driving between rural and urban environments as reported by police officers. In addition, to provide necessary context, this study aimed to explore how the police officers perceive differences in drivers' engagement in phone use while driving between rural and urban environments. To address these aims, a total of 26 police officers from Queensland, Australia (18 with both rural and urban experience, 6 with only rural experience and 2 with only urban experience) completed an interview. A total of seven themes were developed from the data. Several differences between rural and urban environments were identified concerning different types of phone offending behaviour, as well as different resources, management and infrastructure that can impact police enforcement. For example, it was suggested that drivers in rural areas have less reasons to use their phone while driving. Nevertheless, when this behaviour does occur, it is more challenging to enforce this law in rural compared to urban environments. The results not only provide important contextual information for phone use while driving research, but also suggest that enforcement strategies for this behaviour may need to be recontextualised to incorporate the more nuanced aspects of rural policing.

## 1. Introduction

Mobile phone use while driving (MPUWD) is one of the main risk factors for road trauma worldwide. To reduce drivers' engagement in phone use while driving, many jurisdictions have made hand-held MPUWD an illegal behaviour. Despite the implementation of legal measures to reduce the behaviour, MPUWD remains a significant road safety issue (Oviedo-Trespalacios, 2018; Nguyen-Phuoc et al., 2020). In jurisdictions with severe penalties such as Australia (i.e., drivers detected using a handheld phone in Queensland, Australia are fined $1000 AUD and receive 4 demerit points[1]), a potential explanation for the pervasive rates of MPUWD is the high incidence of avoiding being caught and punished for the offence (Oviedo-Trespalacios, 2018; Truelove et al., 2019, 2023). As such, it is important to look at the effectiveness of MPUWD law enforcement to identify opportunities that optimise the effectiveness of this countermeasure in reducing MPUWD.

The primary enforcement method for MPUWD laws is via police officers who detect the offence and apply the respective penalties. However, several challenges have been found to undermine the effectiveness of enforcement via police officers (Nevin et al., 2017; Rudisill et al., 2019; Rudisill and Zhu, 2021). For example, research in the US has found that the MPUWD laws can lack clarity and be too specific (e.g., allowing certain phone functions while driving and not others), which can make obtaining sufficient evidence and enforcing the law very

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[1] In Queensland, Australia, novice drivers on a learner or provisional licence can lose their licence after acquiring 4 demerit points. Meanwhile, more experienced drivers on an open licence can accrue 12 demerit points before facing licence loss (Queensland Government, 2022).

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difficult (Nevin et al., 2017; Rudisill et al., 2019; Rudisill and Zhu, 2021). In Australia and the US, it was also identified that the MPUWD law can be difficult to enforce if drivers are trying to conceal the behaviour (Rudisill and Zhu, 2021; Oviedo-Trespalacios, 2018). In another study, Rudisill et al. (2019) identified that police officers found it difficult to confirm that an individual is using their phone while driving (particularly depending on the time of day and design of the vehicle), and there can be a safety risk pulling over drivers for using their phone in certain situations. Research has also found that police enforcement has evolved across jurisdictions, but the effectiveness of these innovations is largely unknown. For example, it has been reported that police officers in the UK have conducted operations where they film the driver from the top level of double decker buses, they have encouraged drivers to submit dash-cam footage of other drivers illegally using their phone, and they have reported driving heavy goods vehicles to enable them to capture the behaviour more easily (Snow, 2019). In Australia, governments have started to introduce automatic detection of phone use while driving using cameras. Unfortunately, evidence on the effectiveness of these automated enforcement strategies is very limited. However, MPUWD prevalence remains unacceptably high as highlighted in recent studies (Bates et al., 2021a; Kaviani et al., 2022; Stefanidis et al., 2022).

A key consideration for policymakers is that police officers and enforcement technologies are limited resources that need to be optimised to maximise their benefit. Currently, levels of enforcement activities for MPUWD vary across jurisdictions. A good example of this is that mobile phone detection cameras are more likely to be implemented in urban areas compared to rural areas. Further, the number of police officers in rural areas is generally lower compared to urban areas due to factors such as a larger geographical spread and lower population density (Rantatalo et al., 2021; Ricciardelli, 2018). As such, it is important to understand how enforcement of the road safety law, including MPUWD legislation, is conducted across these areas. This is reinforced by the fact that road safety outcomes in some territories are worse than in others. For example, over 65% of fatal crashes in Australia occur in regional and remote areas, with the road fatality rate per population increasing with higher levels of remoteness (Bureau of Infrastructure, Transport and Regional Economics, 2020). More specifically, a study that looked at hospitalisations because of crashes in rural Queensland found that 30% of those crashes could be attributed to driver distraction (Sheehan et al., 2008). Additionally, a study conducted in Jordan found that distraction was the second most common cause for crashes on both rural and suburban roadways (Al-Rousan et al., 2021). However, it should be acknowledged that there are limitations in this data, as there can be deficiencies in reporting whether a crash was due to distraction, and more specifically the use of a mobile phone, resulting in the suggestion that the true impact of MPUWD on crashes is underreported (Ige et al., 2016). An open question is whether the resources applied match the needs of road safety. Identifying different challenges that police officers face in enforcing the phone use while driving law in rural and urban areas is a crucial step towards improving legal countermeasures to prevent road trauma.

Findings from recent studies suggest that police are confronted with different challenges between urban and rural environments. For example, it has been identified that police officers in rural areas are required to adapt their work that is generally suited to more urban areas (Rantatalo et al., 2021; Ricciardelli, 2018). There is also reportedly a shortage of policing staff and resources in rural areas (Rantatalo et al., 2021; Ricciardelli, 2018). Further, due to the shortage of staff, police officers in rural areas need a wide range of diverse skills, as opposed to urban areas where there are more police officers who can have different skill specialisations (Fenwick, 2016). In rural areas, police officers are also more likely to have contextualised knowledge of the community (Wooff, 2015) which may impact the way they interpret situations (Rantatalo et al., 2021). This close involvement with the community also means that police officers are required to establish credibility as both a community member and as a police officer. It has been identified that it can be difficult for a police officer to navigate the balance of being both an insider and outsider of the community (Fenwick, 2015). In addition, the set-up times for police operations can take longer due to the size of rural areas, as further travel time may be required (Ranatatalo et al., 2021). Arguably, the differences between urban and rural areas would also influence enforcement of the MPUWD law, which may result in safety issues and imbalances that need to be researched. No previous research has investigated the different strategies that may be used by police officers to enforce the MPUWD law in rural compared to urban environments.

Another consideration is that there are differences in drivers' behaviour and engagement in MPUWD between rural and urban areas which might influence the effectiveness of law enforcement for this behaviour. For example, McEvoy and colleagues (2006) found that the proportion of individuals using a mobile phone while driving was significantly higher in participants residing in metropolitan areas compared to those in rural environments. On the other hand, recent data indicate that no differences exist in engagement in MPUWD between metropolitan and urban areas (Rudisill and Zhu, 2017). The difference in these results may at least be partially attributed to the evolution of the mobile phone technology over this time. For example, in 2006 when the former study was published, the first iPhone which would have full access to the internet had yet to be released to the public. In contrast, in 2017 (when the latter study was published), the use of a smartphone had become much more widely integrated into society, which can translate to more frequent MPUWD. Consequently, it could be suggested that the results from the study by Rudisill and Zhu (2017) may be a consequence of rural drivers using their phone at a similar rate as drivers from urban areas in more recent years. However, worse reaction times when using a mobile phone while driving were found in rural compared to urban settings (based on a driving simulator study; Papantoniou et al., 2016). It was argued that this finding was due to drivers engaging in more self-regulation of their phone use while driving behaviour in urban settings because of the more complex environment. In addition, research indicates that young drivers from rural areas perceive their chances of being caught violating a road offence are much lower than drivers from urban areas (Bates et al., 2020). Further, young rural drivers are aware of which roads to avoid, and which driving routes will enable them to evade detection (Bates and Anderson, 2021). They also assume that they are less likely to be punished due to their "small town relationship" with police (Bates and Anderson, 2021). Taken together, these findings help us to hypothesise that MPUWD law enforcement may be considered more difficult and challenging by police officers in rural areas when accounting for the lack of resources and staff, as well as their relationship with the community.

### 1.1. The current study

The present study takes the first steps in exploring the impact rural settings have on enforcing the phone use while driving law. This will be investigated in a context where the penalty for MPUWD is severe (i.e., Queensland, Australia). These findings can help inform the enforcement needs of jurisdictions planning to increase the penalty for this offence, to ensure a positive safety outcome. Due to the limited research in this area, a qualitative approach was used to capture an in-depth understanding of the differences and experiences of police officers across rural and urban areas. Two aims were addressed by this study:

(1) To investigate how the police officers perceive differences in drivers' engagement in phone use while driving between rural and urban environments.
(2) To explore how police officers perceive the differences in enforcement of phone use while driving between rural and urban environments.

## 2. Methods

### 2.1. Context of the study

The present investigation was conducted in Queensland (Australia) where hand-held phone use while driving is illegal. The Queensland Government (2021a, 2021b) states "It is illegal to hold a mobile phone in your hand or have it resting on any part of your body, such as your lap, when driving. This applies even if you're stopped in traffic. The phone does not need to be turned on or in use for it to be an offence." If a driver is caught illegally using their phone while driving, they may incur a AUD $1033 fine and 4 demerit points (Queensland Government, 2021a, 2021b). This penalty was increased from a AUD$400 fine and 3 demerit points in February 2020 (Queensland Government, 2021a, 2021b). Drivers who are caught for an additional phone use while driving offence within 1 year of a previous offence will incur double demerit points (Queensland Government, 2021a, 2021b). Queensland consists of both rural and urban environments. Images in Fig. 1 and Fig. 2 demonstrate some of the differences in roads between these environments. For this study, an urban environment refers to built-up areas that are densely populated, while rural areas are located outside of these urban environments (Australian Institute of Health and Welfare, 2022).

### 2.2. Participants

In total, 26 police officers completed the study. This sample size was determined by the researchers to have adequate information power to address the aims (Malterud et al., 2016). Specifically, responses had strong dialogue, participants had characteristics that were very specific to the research aim. Based on information power, these features require a smaller sample size. Nevertheless, the sample size was still sufficiently large enough to account for a cross-case analysis, and the fact that analysis did not need to be deductively guided by theory (Malterud et al., 2016). The sample comprised of 18 police officers who worked in both rural and urban areas, 6 who have only worked in rural areas and 2 who have only worked in urban areas. All participants had experience in enforcing illegal mobile phone use while driving laws. Informed consent was obtained via a secure online form and verbally via telephone.

**Fig. 1.** Rural road environment.

**Fig. 2.** Urban road environment.

Eligibility criteria of participants included 1) they must be a current Queensland Police Officer, 2) they must be over the age of 18 years and 3) they must have experience enforcing the phone use while driving law. The study was approved by the University of the Sunshine Coast Human Research Ethics Committee, ethics number A211520 and received senior management approval by the Queensland police. The Queensland Police Inspector provided the researchers with a list of contact details of eligible police officers to be recruited.

### 2.3. Materials and procedures

Participants underwent a semi-structured interview via telephone that took between 30 min to an hour, depending on the length of time participants spoke for. A research assistant transcribed the responses during the interview. The interview questions were developed to identify the types of areas that the police officers worked, as well as to assess their perceptions of the types of phone behaviours that are being engaged in while driving in the areas they work. Further, they were asked about their experiences with enforcing the phone use while driving law and perceived differences in enforcement of, and tolerance towards, the phone use while driving law in rural compared to urban areas. The full set of interview questions used in this study is included in the supplementary material. Due to confidentiality, demographic information of the police officers is not reported.

### 2.4. Analysis

An inductive reflexive thematic analysis was used to analyse the data, using Braun and Clarke's (2021) six stages. First, familiarisation of the data occurred via the reading and re-reading of the data. The first author also conducted the interviews to aid in familiarisation of the data. Next, the data was analysed for codes related to the two research aims, whereby the most appropriate semantic or latent meaning was applied to the dialogue. Related codes were developed into initial themes by clustering the codes that have similarity in their meaning across the dataset. Consistent with reflexive thematic analysis, the themes were developed based on the central organising concept that was identified from related codes to capture a shared meaning from participants (Braun and Clarke, 2021). The themes were subsequently developed and reviewed. The viability of the analysis was reviewed by checking that the themes were consistent with the codes and the data that the codes were co-created from. Further, the themes were checked against the research aims to ensure the aims were appropriately addressed by the most salient patterns identified within the data set. These themes were then further refined, named and written up. Two distinct themes were created that answered aim 1, which focussed on perceived differences in drivers' engagement in phone use while driving between rural and urban environments. Meanwhile, research question 2 was more complex to answer as there were numerous distinct findings related to how police officers perceive the differences in enforcement of phone use while driving between rural and urban environments. As such, a number of themes were created to answer this aim, with each theme displaying an important shared meaning that was found across the data. The codes and themes were created by two researchers to ensure consistency. To further strengthen the reliability of the results, the themes were then checked by a third researcher. Any disagreements were discussed by the researchers until resolved.

## 3. Results

A total of seven themes were developed and key relationships among the themes were proposed as per Fig. 3. Reports from the police officers suggest that differences in infrastructure between rural and urban areas influence the nature of engagement in MPUWD in these environments. The enforcement strategies used by police officers were influenced by differences in management, resources, and infrastructure between the rural and urban areas. Furthermore, differences in engagement in MPUWD and police enforcement of this behaviour are suggested to influence police officer strategies to apply penalties in the rural and urban areas. The themes are outlined in detail below with quotes used to support the ideas presented in the themes.

### 3.1. Theme 1: The nature of mobile phone use while driving is different in rural and urban areas

Police officers suggested that the nature of phone use while driving was different in rural compared to urban areas. Overall, it was suggested that drivers in rural areas were less likely to engage in illegal MPUWD compared to drivers in urban areas. There were two main reasons reported for this, including 1) less job-related reasons to use the phone in rural areas and 2) different attitudes towards phone use while driving in rural areas.

First, police officers identified that drivers in rural areas may have less job-related reasons to use their phone while driving compared to drivers in urban areas. In urban areas, police officers reported that a common reason given for illegal phone use while driving is contacting their boss or a colleague. However, in rural areas, it was stated that common jobs included mining and farming, which reportedly do not require as much phone communication with stakeholders as corporate jobs. Nevertheless, it was also mentioned that more people take public transport in urban areas (as they have better access to this transport option), which can allow these people to still engage in their commute time in work purposes safely. Another reported reason for the diminished need to use a phone while driving in rural areas was that people lived closer to their work and had less of a commute to work and home, so there was less of a reason to need to communicate during the trip. Examples of these perceptions are outlined in the below comments

> *"People generally don't rely on their phones as much in rural areas, cause you got a mining town and most the people work at the mines or work on farms. They might not need their phones for constant communication with colleagues to get jobs done. In city areas you are obviously driving to the office and somewhere else and rely on the contact with other clients and employees."*

> *"Some of the remote places, I think that mobile usage wasn't, they didn't use it as much whilst driving. Its not far from home, smaller town. Around some busier parts, around Noosa and Maroochydore it's a common occurrence that I see. Brisbane city is busy, but with public transport a lot of the corporate world catch buses and trains to work, so a lot of people on the road are transit. I think sunshine coast is worst for mobile phone usage. Everyone seems to use public transport in the cities, a lot of cars still, but the corporate world of people trying to be better"*

Second, police officers also mentioned that drivers' attitudes towards MPUWD was reported to be different in rural compared to urban areas. A common premise was that drivers in urban areas have a more favourable attitude towards phone use while driving compared to those in rural areas. The higher acceptability of MPUWD in urban areas may be associated with the more regular use of a phone in general reported to occur in these areas, which can translate to more frequent use of the phone while driving. The below comments demonstrate the reported different attitudes.

> *"The attitude towards it seems to be different in rural type area. Like the farmer won't jump on his phone when hopping downtown."*

> *"There is a more "she'll be right" kinda attitude in more popular sort of areas."*

These results highlight the differences in MPUWD behaviour and attitudes between rural and urban areas, which provides necessary context to the later themes surrounding differences in enforcement of the phone use while driving law between these areas.

### 3.2. Theme 2: Differences in infrastructure between rural and urban environments influence engagement in phone use while driving

Police officers also highlighted that limitations in transport and telecommunications infrastructure resulted in some restrictions among drivers intending to use their phones in rural areas. There were two main reasons reported for this, including 1) limited phone reception in rural areas and 2) infrastructure of urban areas presents more opportunities for phone use while driving.

First, it was reported that phone reception could drop out in rural areas, which limited the amount of time that a driver in a rural area could illegally use their phone while driving. Notably, the phone reception was mentioned to primarily drop out when leaving the rural town, which could leave long distances between towns where there was limited reception. When there was no phone reception, the participants mentioned that the only phone function that could be useful while driving was the use of music. A police officer highlighted that areas with reception can result in crash hotspots as drivers without connectivity on their phones would suddenly receive a potentially large number of notifications when having the connectivity back. These perceptions are demonstrated in the below comments.

> *"I think there is a couple of differences, once we get anywhere on the rural roads there is no reception, so your phone is useless to you. Phone becomes less useful unless using it for music. We get ok reception but leaving town you get less signal, so people don't use phones for that purpose."*
>
> *"Generally, in remote areas people don't use their mobile phones as often. It's because they aren't used to having reception."*

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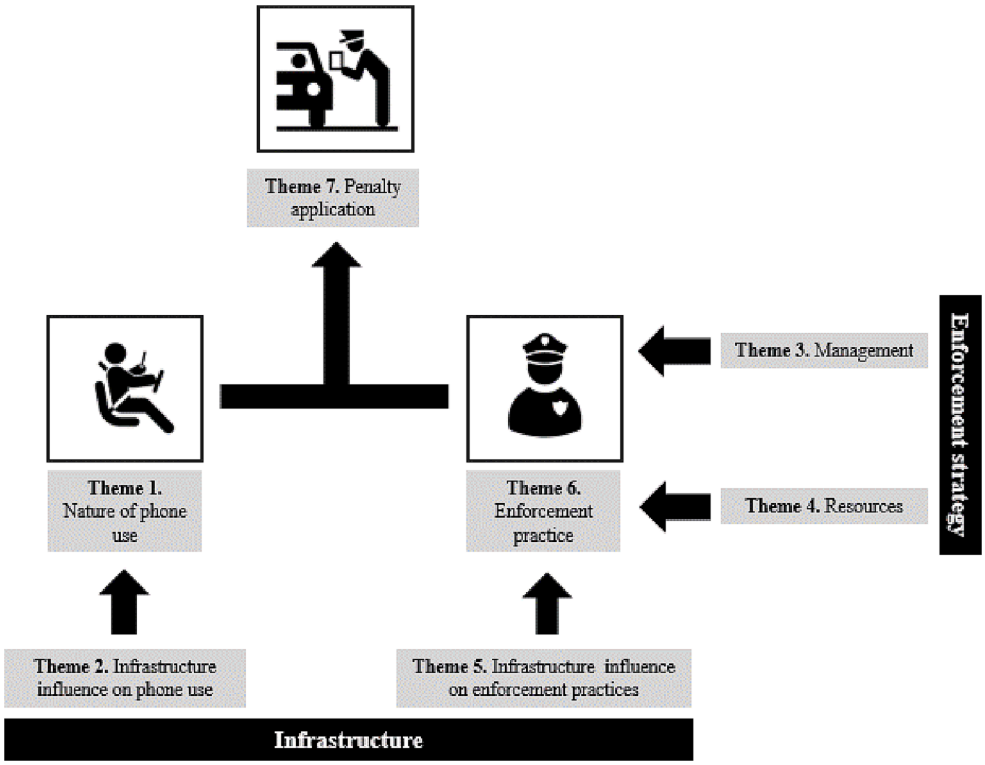


**Fig. 3.** Schematic representation of the themes and relationships identified in this study.

(*continued*)

> *"There was a spot in a rural area where people kept crashing and we couldn't figure out why, then I was talking to my truckie friend and he was like are you stupid? That's the area where your phone comes back in range so everyone's hearing the notifications go off there and because they've been driving a long time, they're bored and they check their notifications"*

Second, police officers also commented that the differences in transport infrastructure between rural and urban areas influence the incidence of MPUWD. Specifically, it was mentioned that slower speeds and more traffic congestion in urban areas provide drivers with more opportunities to use their phone while driving compared to rural areas that have higher speeds and less traffic density. This signals that the higher speed limits in the rural areas might reduce mobile phone use while driving. The below quote provides an example of this perception.

> *"There's more traffic congestion and slower speeds in metro areas. So, boredom and congestion also begin to factor in and they use their phone more when traffic slows down or gets congested. You don't get that in rural areas."*

### 3.3. Theme 3: Road policing management is different in rural and urban areas

Several differences in the management of road policing between rural and urban areas emerged from the interviews, primarily related to the smaller population and less policing resources in rural areas compared to urban areas. These differences were suggested to have an impact on the way in which enforcement of phone use while driving was managed. First, it was revealed that the police officers' duties and training were a major difference between the types of areas. In urban areas, there are highway patrol officers[2]; the primary duty of these police officers involves enforcing road rules. Meanwhile, urban areas also have general duty police officers who have several additional policing duties, with road policing duties given less priority. In contrast, rural areas only have general duty police officers, with no highway patrol specific officers. Based on responses from the police officers, the general duty police officers in rural areas take on more road policing duties than general duty officers in urban areas since 1) they have more opportunities to be proactive as the population is lower and 2) there are no highway patrol officers, therefore, they are required to do more road rule enforcement to compensate for this. The below comments demonstrate these perceptions.

> *"Regional and metro they have road policing command with people on the ground enforcing those things."*
>
> *"As you move away from the main areas the police that have specific training become less and less."*
>
> *"Basically, worked in towns where we have done our own traffic policing. We probably do 40–70% of the time traffic policing. Like a mini traffic branch."*
>
> *"There is massive differences, general duties officer at [an urban environment] anywhere you go to, 8 general duties jobs a day. Less time to be proactive in enforcement of road traffic and other offences. Here [in a rural town] you get 2 to 3 jobs a day, it's just different. Down there we have a watch house we don't have to run, here you have to run the watch house and jobs take more time. But you do get more time to be proactive and detect offences."*

The smaller number of police officers stationed in rural locations compared to urban locations was mentioned as a limitation for enforcing the MPUWD law in rural areas. This was due to large areas of road in rural areas with less police officers being available to police the roads, which can result in less people being caught and punished for the

[2] Based on communication with police officers, the name 'highway patrol' is a recent name change; previously, these police officers were referred to as the road policing unit or road policing command. Despite the name, highway patrol officers can enforce road rules on any urban road.

offence, and subsequently more people potentially getting away with the offence. The following comments demonstrate these perceptions.

> *"Obviously there are more officers in regional and metro areas then rural. Enforcing something in those areas with mobile phones you are going to have a higher enforcement rate with more officers on the road doing that. Whereas in rural you only have one or two officers stationed, only one car on the road for the whole town."*
>
> *"In [an urban] police force, you got more police and more condensed traffic conditions. But in rural and smaller towns, you got wider open spaces, higher speed limits and much fewer police to enforce the law."*

### 3.4. Theme 4: Road policing resources are different in rural and urban areas

Another theme that emerged was that police have access to less resources to enforce this law in rural areas compared to urban areas. Specifically, police officers in rural areas reported driving marked police vehicles, while police officers in urban areas also have access to some unmarked vehicles, which was stated to aid enforcement of the MPUWD law. Further, it was noted that police officers in more urban areas could use cameras (distinct from the government implemented mobile phone detection cameras, explained below) to capture drivers illegally using their mobile phone. However, this technology was not used in rural areas. Another possible limitation to the use of this technology in rural areas could be associated with the need to have multiple police officers involved in the operation. For example, there needs to be at least one police officer with the camera to notify another police officer who is located further up the road to apprehend offending vehicles. However, in rural areas, it may not be possible to have multiple police officers involved in a phone use while driving enforcement operation. The following comments provide examples of these perceptions.

> *"I would say down here if we get tasked on a traffic shift in an unmarked car just for phone use it is a different type of policing than in the bush."*
>
> *"No, I think in the metro it's a lot easier to do depending on how it's done. In rural areas we're all in marked cars and uniform and they see us. They still continue to talk on their phone and drive dangerously. In town with unmarked cars it's easier. Motorbikes are an asset."*
>
> *"Again, leading back to if we try and do mobile phone operations you have to have officers there and cameras and whatever else. Difficult to do out here."*
>
> *"Bridge mounted cameras and stuff like that [for enforcing the phone use while driving law], they are in more metro and semi-regional areas rather than rural areas."*

After a trail period, mobile phone detection cameras were rolled out across Queensland in November 2021 (Queensland Government, 2022). These cameras are different to the above-mentioned cameras used by police officers in phone use while driving enforcement operations. Instead, the mobile phone detection cameras are operated by the Queensland Government and are located in undisclosed locations throughout Queensland. They are positioned up high on an angle to enable optimal vision into the driver's seat of a vehicle. The cameras use artificial intelligence to recognise a driver holding a phone. Notably, police officers in this study stated that these cameras are primarily only located in urban areas, with very limited cameras in rural locations. When a mobile phone enforcement camera was placed in a rural area, it was mentioned that the camera was very visible to drivers, particularly due to the lack of other road infrastructure. This is demonstrated in the below comments.

> *"I don't think we have any[phone detection cameras] up here [rural area]"*
>
> *"No, there is one camera shared between Gladstone and Rockhampton, don't know the future plans for that. We are still writing phone tickets most days, don't think it has much of an impact unfortunately."*
>
> *"Fairly early stages, haven't been to the big cities. Only seen the local ones and they are very obvious on the side of the road. Parked on the side of the road with big cameras all over it."*

### 3.5. Theme 5: Different infrastructure in rural and urban areas impact enforcement of the phone use while driving law

A theme that consistently emerged among police officers involved the differences in the transport system between rural and urban areas that impact enforcement of the MPUWD law. Some of these differences were associated with several challenges to enforcing this law in rural areas. However, it was identified that rural areas have the advantage of less vehicles on the road, which can give police officers opportunities to look closer at what drivers are doing, compared to urban areas where there are too many vehicles on the road, thereby limiting the ability to thoroughly inspect all vehicles. The following comment provides an example of this perception.

> *"In the city there are more cars around, more potential that you can see, but by the same token, there are fewer cars [in rural areas], you tend to look a little closer."*

Meanwhile, a number of disadvantages were also identified in relation to rural road infrastructure compared to urban infrastructure. The large number of intermediate roads (otherwise known as two-lane roads, consisting of a single-vehicle width lane going in each direction) in rural areas was considered a major challenge to enforcing the phone use while driving law. It was stated that urban areas have more multi-lane roads (consisting of two or more lanes of traffic going in each direction), which presented an easier opportunity to identify offenders and enforce the phone use while driving law. Some of the reasons included: 1) difficulty observing the behaviour as there is no space to drive abreast vehicles and 2) a lack of safe spaces for pulling over the driver. The police officers highlighted that the impossibility of driving abreast vehicles also complicates the process of obtaining evidence that a driver was illegally using their phone while driving, as body camera video is the main tool to create evidence of the road rule violation. The comments below demonstrate these perceptions.

> *"[The urban area] is more built up, traffic lights, and more two laned roads where you can drive up next to someone. Where I currently am, we don't have any two-lane roads where you can pull up next to someone while driving, they are all one way streets. If I pull up to an intersection and by chance I can see through their window, it is hard to pick them up. Same for the station out west in the country, single lanes streets purely luck when you get someone."*
>
> *"Much harder to detect mobile phone offences on single lane roads, which we have a lot of here."*
>
> *"When I think of rural, the traffic is long stretching off the Bruce highway, the peak is higher. It's extremely difficult to enforce unless you see a person coming in the other direction. You're travelling at 100 km and don't have multilane roads so that's different to regional."*

The limited number of traffic lights and stop signs was another reported challenge for enforcing the phone use while driving law in rural areas. Traffic lights and stop signs were identified to provide an easy and safe method of enforcing this rule, as it allowed police officers to see into vehicles much easier. It also presented an easier opportunity to pull the driver over to give them a ticket. Further, it was mentioned that police officers on motorbikes could drive in between vehicles at lights in urban areas to detect the behaviour.

In addition, higher speed limits in rural areas were also mentioned as a challenge to enforcing MPUWD due to the difficulty seeing into the vehicles when they are travelling at high speeds. This also presents an additional challenge to enforcing the phone use while driving law on intermediate roads, as many of these types of roads can have high speed limits. It was noted that an alternative enforcement method in rural areas involved capturing drivers in low-speed zones. A further infrastructure challenge to enforcing the phone use while driving law in rural areas was the limited access to environments that have a height advantage (e.g. elevated side roads, bridges, hills) that make it easier for police officers to capture the phone use while driving activity. Such height advantages were suggested to be more prevalent in urban areas.

The following quotes demonstrate these perceptions.

> *"I am in Brisbane at the moment and you see people on their mobile phones just walking in the street. If you were in a car, it is difficult in a city to catch that person. But on a motorbike it is easier. In rural areas it is easier to intercept a motorist that is using a phone, and on a regional road when travelling past someone at 100 km and you are going 100 km it can be difficult to detect phone use. Our guys are good at detecting this."*
>
> *"Its quite easy to spot people on their phones at traffic lights because there's that big bank up of people but in rural areas there are generally not traffic lights or stop signs so you need to observe people while they drive"*
>
> *"Less traffic lights etc., so you pick up offenses with lower speed limits and less traffic. Yeah, probably in remote areas it is more difficult, you don't have the infrastructure, like high positions to look down. You only rely on seeing when moving. In Brisbane, there are many high positions, and Rockhampton has a few too. Enforcement becomes more driving around and seeing what people are doing."*

### 3.6. Theme 6: Different phone use while driving enforcement strategies can be used in rural and urban environments

Enforcing the phone use while driving law involves a number of additional challenges in rural areas compared to urban areas. Therefore, police officers have developed strategies to address the influence of the road traffic environment on phone use road policing in rural areas. The underlying principle is that 1) the structure of the police force and 2) the lack of resources obligates police officers to be more creative when enforcing the mobile phone use while driving road rules. For example, the fact that most police officers drive marked vehicles is seen as an opportunity to estimate the level of distraction of a driver. If the driver does not note the presence of the marked vehicle, they are seen as deserving of an infraction. Another method of detecting MPUWD in rural areas involves capturing the driver committing another offence as well, such as speeding. Further, while most rural police officers do not have access to an unmarked police vehicle, an alternative method of capturing drivers using their phone (as well as other road offences) can involve a police officer wearing plain clothes and being located in certain areas, such as intersections, that are easier to intercept. However, as such places are limited in rural areas, an additional enforcement method reportedly involved police officers capturing drivers illegally using their phone in car parks. These perceptions are demonstrated ion the comments below.

> *"Last year I gave a couple hundred tickets, only 1 of those was a mobile phone. Only reason I wrote that ticket was because the guy was doing about 80 km/h in 60 km/h zone while on a mobile phone. He didn't see me. I was on the opposite side and activated the lights and he still didn't see me. Only 500 m down, did he see me. I spoke to him afterwards; he didn't even know I was there. That is one of my only mobile phone tickets I have issued here. On the coast, they use unmarked vehicles and drive up next to the car and it's very easy to detect, the method and detection is easier to see in the vehicle when next to them in a lane. That's the way it is in a rural environment."*
>
> *"Most of the time we drive around in marked Hilux's so if someone doesn't see that, they deserve a ticket whereas in the city they are in unmarked cars."*
>
> *"For me, purely on what I have seen. In [a rural area], I generally catch it associated with another offence for example speed detection is most common."*
>
> *"Once a roster, or twice we do spotter ops. Not specifically mobile phones. Someone in plain clothes, so we are not just looking for phones but seatbelts, all those sorts of things."*
>
> *"We have little pinch points, intersections, a couple of converging arterioles, reasonably high volume traffic and easier to intercept them. We do one day and most we get is 2 phones for the whole day."*
>
> *"Our environment is different as well, few double lanes. Don't have any residential dual lane roads. Leads it to us detecting someone driving out of a carpark from the shopping centre for example. Whereas, different detection methods on sunny coast, cars coming up to people, and bikes going up between vehicles stopped at lights which is highly effective with better view."*

### 3.7. Theme 7: The application of the phone use while driving penalty can be different in rural compared to urban areas

Another theme that emerged was that police in rural areas are closer to the community and are more likely to know the personal circumstances of drivers. Consequently, these police officers are more likely to be aware of the impact a fine will have on drivers compared to police officers in urban areas. However, it is important to acknowledge that it was consistently mentioned among police officers that the amount of tolerance for the offence was the same in both rural and urban areas. Importantly, while police officers in rural areas were reportedly more likely to know drivers, this works the other way around as well, where drivers are more likely to know the police officers. It was mentioned that due to this familiarity, drivers in rural areas may be more likely to take a warning or an infringement for illegal phone use while driving more seriously than drivers from urban areas. The below comments demonstrate these perceptions.

> *"Yeah again, it's the hardest thing about selling that ticket. If you are in a rural area and are issuing someone with a $1000 fine, for some that's their fortnightly income. Whereas in a metro area its easier. If I am rural and I am issuing a fine, I will run into that person in town. It's a hard place for some. It's a lot of money but everyone has a sob story"*
>
> *"There is the same amount of tolerance, if I see someone on their phone no excuse will get them out, I will give them an infringement notice. The only excuse is if someone is in an emergency (*i.e.*, my wife is in hospital and I am on the phone to the surgeon). If you can confirm that, that would be okay. Tolerance level is the same. I know everyone here in [a rural area], if you see someone on the phone they get a ticket. Same in [the urban area] as well"*
>
> *"It's frowned upon everywhere. If you get caught you deserve it. A small place they might take that one seriously. That person has respect to the police officer."*

## 4. Discussion

The present manuscript investigates the impact that rural settings have on MPUWD law enforcement. To address this gap, the present investigation took an exploratory approach to explore the differences in MPUWD law enforcement between rural and urban areas from a police perspective. Further, to provide necessary context, this study identified how police officers perceive differences in drivers' engagement in MPUWD between the different environments. Overall, the results indicate that numerous differences exist in both engagement in phone use while driving and enforcement of this offence between the rural and urban environments, suggesting that enforcement strategies for MPUWD may need to be recontextualised to incorporate the more nuanced aspects of rural policing. The use of a unified strategy of enforcement without considering infrastructural and social differences across rural and urban areas may result in road policing benefitting some groups less than others.

When considering differences in enforcement of the MPUWD law between rural and urban environments, it is important to understand how engagement in this offending behaviour differs between these areas. Consistent with previous research in Australia (McEvoy et al., 2006; Wundersitz, 2019), it is suggested that rural drivers engage in phone use while driving less often than urban drivers. The qualitative nature of this study provided a more in-depth understanding of why this occurs. Specifically, the results identified differences in rural infrastructure can impact phone use while driving, including 1) limited phone service in certain rural areas and 2) more high-speed environments. This study also suggested that drivers in rural areas had different attitudes towards phone use while driving, with drivers in urban areas perceiving the behaviour of using a phone while driving as more favourable than drivers in rural areas. Furthermore, it was also identified that the jobs of people in rural areas may not require the use of a phone as often as those in urban areas, resulting in less reasons to use a phone while driving in rural areas. Previous research has found that

work-related demands often influence MPUWD among urban office workers (Costantini et al., 2022; Oviedo-Trespalacios et al., 2020). The numerous reasons rural drivers have for not using their phone, as well as their less favourable attitudes towards this behaviour, could be considered a protective factor. This is especially important considering previous research has identified worse reaction times when using a phone while driving in rural compared to urban settings, due to less self-regulation in the less complex environments (Papantoniou et al., 2016). These findings may also be important to consider for future research in relation to informing countermeasures that reduce driver's engagement in phone use while driving in urban areas (e.g., by improving attitudes towards the behaviour).

The context of lower rates of phone use while driving in rural areas compared to urban areas is promising given the results also revealed that police officers in rural areas face numerous additional challenges to enforcing this rule in comparison to officers in urban areas. As a result, it may be easier for drivers in rural areas to avoid being caught and punished for phone use while driving, which has consistently been found as one of the strongest predictors of more frequent engagement in the behaviour (Stafford and Warr, 1993, Oviedo-Trespalacios, 2018; Truelove et al., 2019). One of the challenges involves the management of road policing. It was identified that there are less rural police officers with varying levels of training, and a wider range of duties compared to urban police officers (where there is a larger range of more specialised officers, including road policing officers). While this research was conducted in Queensland, Australia, these findings are consistent with international research that identified the smaller number of staff in rural areas results in these police officers needing to adapt their work and have a wide range of skills, instead of the more specialised skill set that is more common in urban areas (Fenwick, 2016; Rantatalo et al., 2021; Ricciardelli, 2018). Given this, it can be considered that training of police officers needs to align with the different skills they will need depending on the areas they will be working.

Several differences in terms of road policing that affect the enforcement of the MPUWD legislation were identified. For example, numerous police officers raised the issue that unmarked cars are only available in urban areas. Due to the visibility, it is easier for drivers to avoid being caught using a phone while driving when the police are driving marked vehicles. This is a particularly pertinent problem for road safety enforcement, especially for phone use while driving where it has been identified that drivers frequently conceal this behaviour (Gauld et al., 2014; Truelove et al., 2021; Oviedo-Trespalacios et al., 2017, 2021). However, it should be acknowledged that while visible enforcement may make it easier for drivers to avoid being caught, it could also increase general deterrence. General deterrence refers to preventing the general public from committing an offence provided they perceive there is 1) a high chance of being caught, 2) the punishment is severe and 3) the punishment is delivered swiftly (Homel, 1988; Piquero et al., 2011). Deterrence theory has frequently been used to understand the impact of legal sanctions on behaviour, including MPUWD (e.g., Kaviani et al., 2020; Ogden et al., 2022; Truelove et al., 2019). In this instance, it can be suggested that if drivers are more exposed to enforcement, their perceived chance of being caught may be higher. Based on deterrence theory, maximising the perceived certainty of being apprehended is crucial to optimise deterrence (Homel, 1988; Piquero et al., 2011). However, empirical evidence has yet to demonstrate whether high-visibility enforcement increases general deterrence in the case of MPUWD. As explained by Oviedo-Trespalacios et al. (2020), engagement in MPUWD can be easily concealed due to the nature of the tasks and the possibility to self-pace the interactions. Research by Bastos et al. (2020) also found that drivers can reduce the duration of mobile phone interactions as a strategy to manage the demands and risk. Future research needs to find strategies to optimise deterrence with consideration to environments where additional resources such as enforcement technology and unmarked vehicles might not be available.

Another major difference in resources that was identified involved the lack of mobile phone detection cameras. These cameras were installed in Queensland in November 2021 (Queensland Government, 2022). However, based on the results, it is evident that they were primarily placed in urban areas, with very few being used in rural areas. Notably, when they were used in rural areas, it was mentioned that they were very overt, with very few additional objects present within the roadside environment. While literature has yet to identify the effectiveness of overt versus covert mobile phone detection cameras, research into speed cameras has identified that more infringement notices are issued via covert cameras (Carnis, 2008). However, it has also been found that speeding decreased after covert cameras were painted to become more overt (Keenan and Maunsell, 2003), suggesting that the overt mobile phone detection cameras in rural areas may have some utility in preventing the behaviour. In particular, it can be suggested that more cameras could be introduced in areas where there are limited police resources, especially in places where it is known that mobile phone reception comes back. While this can be costly, the use of overt fake cameras could also be used to maximise drivers perceived chance of being caught. However, police officers also mentioned that another method of capturing drivers using their phone while driving involved a team of police officers, with one officer using a camera to capture the behaviour (distinct from the mobile phone enforcement cameras), and other officers stationed further up the road to pull over the driver and provide them with a sanction. This reportedly did not occur as often in rural areas due to the limited resources. It may be suggested that providing rural police with these resources for certain periods of time could be a useful way to increase their enforcement of phone use while driving. However, police officers would need an area that provided them with a vantage point to easily see into vehicles, which is not always available. Future research should aim to optimise state resources between urban and rural areas.

Police officers identified that while rural infrastructure might limit MPUWD, it can also make enforcement of this behaviour more difficult when it does occur. While previous research has not differentiated across jurisdictions or emphasised rural areas, the results from this study highlight there are a number of unique infrastructure challenges to enforcing the MPUWD law specifically. One of the biggest issues involved the intermediate roads in rural areas, which can prevent police officers from driving up beside a vehicle and looking in to capture the offence. The difficulty capturing the offence was also related to limited stop signs and traffic lights, which were identified as beneficial areas to safely enforce this road rule. In addition, higher speed limits also reportedly make enforcing this law more difficult. Previous research of police officers in more urban areas in the U.S. also identified that enforcing the phone use while driving law was challenging due to the difficulty of seeing into the vehicle, as well as the safety risk of pulling drivers over in certain situations (Rudisill et al., 2019). The intermediate roads, limited stopping opportunities and higher speed limits in rural locations would serve to further heighten these issues. Occupational risks of police officers need to be considered when developing enforcement operations. As suggested above, the use of mobile phone detection cameras (real or fake) may also be useful to maximise deterrence in areas that include infrastructure that make it difficult for police officers to enforce the MPUWD rule. However, it was identified that police officers in rural areas adapt their enforcement strategies to capture MPUWD. For example, some police officers utilise low speed zones such as stop signs and car parks in rural areas to have MPUWD operations. Such strategies should also be made more widely known to rural police officers.

Another difference between rural and urban environments that emerged included the idea that police officers were more likely to know the drivers and their personal circumstances in rural compared to urban areas, resulting in rural police officers being more aware of the impact a fine for illegal phone use while driving will have on an offender. This finding is consistent with previous research on general differences in police enforcement between rural and urban environments, where it has

been reported that rural police officers are more likely to have contextualised knowledge of the community (Wooff, 2015). However, while previous research has suggested that this knowledge may impact the way in which police officers interpret the situation (Rantatalo et al., 2021), it was consistently highlighted by the participants of this study that the amount of tolerance for MPUWD did not differ between rural and urban police officers. A unique finding of this study was that, as rural police officers are more recognised as also being part of the community than urban police officers, drivers who receive a phone use while driving penalty in a rural area may have more respect towards the police officer and take the penalty more seriously. Previous research suggests that people are more likely to comply with rules when they have respect for the police (Bates et al., 2021b; Mazerolle et al., 2012), therefore, it may be suggested that these attitudes towards police in rural areas aid in limiting reoffending behaviour for MPUWD. Based on these results, it can be suggested that increased efforts from police officers in both rural and urban areas to get to know residents could encourage people to take a penalty they receive from police officers more seriously.

Despite the challenges rural police officers face in enforcing the phone use while driving law, it was revealed that they have developed numerous innovative strategies to overcome some of these difficulties. For example, as explained above, rural police officers primarily only have access to marked police vehicles. Consequently, when drivers do not take notice of a marked police vehicle trying to stop them for another offence (e.g., such as speeding), the police officer can then also look for driver distraction. To overcome this limitation of visibility, some police officers noted that they utilised plain clothing operations in rural areas to capture phone use while driving. However, as the use of unmarked vehicles was reportedly a large advantage to phone use while driving enforcement in urban areas, it may be suggested that the allocation of this resource to rural police officers for a period may aid in phone use while driving enforcement.

Nevertheless, it should be acknowledged that the results also identified that the intermediate roads in rural areas would limit the usefulness of unmarked vehicles, as police officers would not be able to drive in the lane next to other drivers to see into their vehicle and hence capture the offending behaviour. Therefore, the use of unmarked vehicles should only be considered in rural areas that have the infrastructure that would allow these vehicles to be useful in enforcing the phone use while driving law. It was also noted that it was easier to enforce the phone use while driving law on motorbikes; this enforcement method is also likely to be beneficial in rural areas. Specifically, it enables officers to see into vehicles on intermediate roads as well as multilane roads. However, the safety of police officers while enforcing the law on motorbikes should be considered. Further, as one of the largest challenges to enforcing the phone use while driving law in rural areas involves high speed intermediate roads (with limited ability for a police officer to look into vehicles), police officers in rural areas reportedly take advantage of enforcing this law in areas where the speed limit is slower and police officers have the opportunity to see into the vehicle (e.g., in shopping centre car parks). Arguably, reducing speed limits would not only increase road safety but reduce occupational risk of police officers.

While police officers have developed strategies to overcome limitations to enforcement of the phone use while driving law in rural areas, there were some advantages to enforcing this law in these environments. First, it was mentioned that less drivers are on the road, resulting in more opportunities for police officers to see into vehicles. Further, it was also noted that there are many places in rural areas where there is no phone reception. Consequently, enforcement of MPUWD should not be a priority in those areas. However, it was noted that when a driver is going through an area that has reception (after previously having no reception), they may receive several notifications at once that can result in the driver being tempted to check their phone while driving the vehicle. As it was mentioned that MPUWD detection cameras can be very visible in rural areas, it may be suggested that the implementation of these cameras would be beneficial in high-risk areas where it is known that phone reception comes back (and importantly, not in areas where there is no phone reception).

### 4.1. Limitations and future directions

While this research provided an important addition to phone use while driving literature by exploring the differences in police enforcement of the phone use while driving law between rural and urban environments, there are a number of limitations to the study that need to be acknowledged. First, this study obtained a police perspective of the differences in phone use while driving engagement between rural and urban areas to provide context to police enforcement of this law. Previous research has identified that drivers frequently attempt to conceal their engagement in phone use while driving (Gauld et al., 2014; Truelove et al., 2021; Oviedo-Trespalacios et al., 2017, 2021), therefore it may be suggested that the phone use while driving behaviour in rural areas could be more expansive beyond what was mentioned from the police perspective. For example, a previous study that was conducted in rural Queensland found that of the crashes that resulted in hospitalisation, 30% of drivers were distracted immediately prior to the crash (Sheehan et al., 2008). However, this figure may be higher as phones become more prevalent (Oviedo-Trespalacios et al., 2019a). Additionally, numerous difficulties exist with reporting whether a crash was due to distraction, and more specifically MPUWD (Ige et al., 2016). Future research should examine differences in engagement in phone use while driving between rural and urban areas from an offender's perspective.

Another limitation is that this study consisted of rural and urban police officers in the state of Queensland (Australia) which may limit the generalisability of these findings. Similar research should be conducted in other regions to determine the similarity and differences of these findings from an international perspective. In addition, as this study found that limited phone service in rural areas could impact MPUWD behaviour when the phone comes back in service, future research should investigate if similar occurrences can take place in urban areas where reception is limited, such as basement carparks and tunnels.

Another consideration is that this paper only considers the influence of police enforcement on distracted driving from a legal perspective. However, emerging evidence links phone use while driving with psychosocial and mental health phenomena, such as addiction to mobile phones and fear of missing out (Rahmillah et al., 2023). Therefore, careful consideration should be given to these emergent variables that could undermine the effectiveness of enforcing road rules. Approaching the issue of distracted driving prevention solely as a legal problem may not fully address the underlying issues and contributing factors. Finally, distracted driving is not only related to mobile phone use while driving but drivers can engage in a wide range of distractions such as interactions with in-vehicle infotainment systems (Oviedo-Trespalacios et al., 2019b) and passengers (Bastos et al., 2021; Newton et al., 2022; Oviedo-Trespalacios et al., 2022). Future research is needed to understand the effectiveness of enforcing road rules relevant to these distractions.

## 5. Conclusion

Taken together, these results highlight the differences that exist in relation to engagement in, and enforcement of, phone use while driving in rural compared to urban environments. The present study suggests that drivers in rural areas have relatively less engagement in MPUWD than drivers in urban areas. Additionally, there is a lack of resources, such as unmarked vehicles or mobile phone detection cameras, that result in a complete reliance on police operations to enforce the MPUWD legislation. However, police officers report safety and operational difficulties that limit their capacity to detect MPUWD in rural areas. Overall, there is a need to optimise resources between rural and urban areas to reduce MPUWD. Additionally, future implementation of mobile phone detection cameras should consider the specific risks and

infrastructural circumstances of rural areas to maximise their positive effect on road safety. Based on the results, it is also evident that police officers in rural areas use various innovative strategies to overcome challenges and effectively enforce the phone use while driving law in these areas. Such strategies, as well as areas that need improvement, should be more widely shared among practitioners and stakeholders to optimise enforcement, and reduce drivers' engagement in this risky behaviour. The differences in enforcement strategies for phone use while driving in rural and urban areas also need to be considered in literature that examines the impact of legal sanctions on phone use while driving to provide necessary context.

## Authors Statement

All authors contributed equally to this manuscript.

## CRediT authorship contribution statement

**Verity Truelove:** Conceptualisation, data curation, formal analysis, methodology, project administration, writing – original draft, writing – review and editing. **Kayla Stefanidis:** Writing - original draft, writing - review and editing. **Oscar Oviedo-Trespalacios:** Conceptualisation, methodology, formal analysis, writing - original draft, writing - review and editing.

## Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

## Data availability

The data can be identifiable as it is qualitative narrations of lived experiences. Sharing the data means putting participants at risk and their jobs. We do not have ethics or consent to share it.

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