ANALYSIS OF YOUTH MENTAL HEALTH AND SUSTAINABLE TOURISM IN OWAKA, RURAL OTAGO

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INTRODUCTION

The primary healthcare setting is an essential area of nursing for the prevention of illness and promotion of health and well-being (World Health Organization, 2019). As part of our third-year studies towards a Bachelor of Nursing degree at the Otago Polytechnic, we participated in a group project which focused on health and well-being in the rural setting of Owaka in South Otago. We developed a community profile of Owaka through collecting primary and secondary information, and next identified vulnerable population groups in the community and relevant health needs. We then carried out a literature review of these identified areas of need and developed relevant health resources. Both these procedures are discussed below.

In part A we discuss the youth of Owaka as a vulnerable population group, and the impact that rural life can have on mental health. We identified that access to, and knowledge of, mental health services within the township is limited and was a health need that we could respond to. In part B we discuss the impact of tourism on the Owaka community and local Department of Conservation (DOC) workers as a vulnerable population group. More specifically, the community assessment allowed us to identify that the current toilet facilities in Owaka are unable to cope with the influx of tourists and the appropriate disposal of human waste. DOC employees are responsible for these facilities within the region and respond directly to any challenges as they occur. In each section, we will discuss the health-promoting interventions we have developed, which aim to reduce the negative impact of the health needs identified.

Ethical approval for this project was granted by the Otago Polytechnic Ethics Committee, including Maori consultation with the Kaitohutohu office.

OWAKA

Owaka is located in the Catlins region, in the Clutha District of South Otago, New Zealand (see Figure 1). This area has a unique expanse of rugged coastline interspersed with diverse native bush, and is home to many different species of rare and endangered wildlife. The Catlins is considered to be of national importance due to the careful preservation of its distinctive natural environment, both in the past and the present (Department of Conservation [DOC], 2003a). The close connections between people and environment are interwoven throughout the history of both Māori and colonial peoples, who have lived and travelled through Owaka and the wider Catlins region. Today, this connection remains – for instance, through farming, which remains a leading industry in the region, and tourism, which has undergone significant development and growth over the past few decades (Catlins Coast Incorporated, 2019a).

Owaka is the largest rural town in the Catlins region (see Figure 2) and is home to 303 residents (Statistics New Zealand, 2013; Venture Southland, 2019). The township is located 110 kilometres south-west of Dunedin and 134 kilometres east of Invercargill (Distance from to, 2012). The town's name means "the place of the canoe," referring to the close proximity of the Owaka River and the Pacific Ocean.
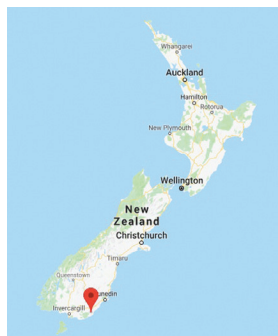

Figure 1. The township of Owaka, New Zealand.
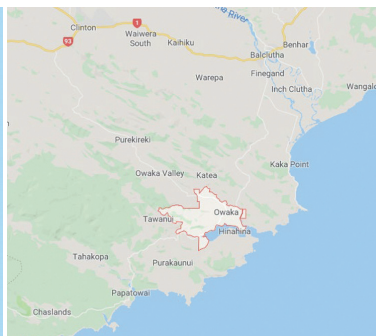Source: Google (n.d.)

Figure 2. The Owaka district.
Source: Google (n.d.)

Community Assessment and Demographics

We developed a community profile of Owaka through undertaking primary and secondary research utilising Anderson and McFarlane's (1996) community assessment wheel. This assessment tool allowed us to gather a comprehensive range of information on the township.

As a result, we identified that Owaka had a median age of 46.3 years; 14.7 percent of the population is over the age of 65, and 20.6 percent are under the age of 15. In the township, the ethnic group with which residents most commonly identified was New Zealand European at 91.7 percent, followed by Māori at 11.5 percent, Asian at 2.1 percent, with 'other' ethnicities making up the final 2.1 percent of the total population (Statistics New Zealand, 2013). A variety of family structures were identified – couples with children account for 34.5 percent of Owaka families, couples without children make up 48.3 percent, and single-parent families make up 17.2 percent (Statistics New Zealand, 2013). In regards to housing, 78 percent of households living in occupied private dwellings (as opposed to unoccupied dwellings, which are mostly holiday homes or "book a bach" properties) either owned these dwellings or held them in a family trust. For rental properties, the median weekly rent was $160 (Statistics New Zealand, 2013).

Owaka has limited health and social services. The health services available to the community include a medical centre, depot pharmacy, ambulance service, public health nurse and physiotherapist. Other services are available in nearby Balclutha and Gore, including physiotherapy.

The economy of Owaka and the wider Catlins region is largely dependent on the physical environment. The expanding hemp industry could provide an opportunity for the Owaka economy to diversify and regenerate (Deverson, 2016). Tourism is another steadily growing industry, with more and more travellers coming to visit the area's remote and scenic coastline (Catlins Coast Incorporated, 2019b). Although tourism offers many opportunities for the region, it also poses some special challenges, particularly for the township's limited infrastructure.

The township of Owaka has a single school (Years 1-13), the Catlins Area School. In 2019 the roll stands at 112, and over the last two years it has experienced a steady increase. The mental health and well-being of pupils is an ongoing priority for staff at the school (Personal communication, April 4, 2019).

PART A: IDENTIFIED HEALTH NEED: YOUTH MENTAL HEALTH IN OWAKA

Introduction

In the 2010 global burden of disease analysis, mental health disorders were established as the leading cause of disease burden for youth between the ages of ten and 24 (Gore et al., 2011). In the New Zealand context, youth are also significantly impacted by mental health issues, and have some of the highest rates of suicide found in developed countries (Mental Health Foundation, 2014). Furthermore, for New Zealand youth aged between 15 and 19, the numbers reporting episodes of psychological distress, [correct?]increased from 58,000 to 79,000 between 2016 and 2017 (Gattey, 2017). In the rural township of Owaka, adolescent mental health is recognised as an area of concern to the community. We undertook a detailed literature review of adolescent mental health and the influence of the rural environment. This enhanced our understanding of the issue and aided us in developing health-promoting resources in partnership with the Owaka community.

Effects of adolescent mental health into adulthood

In contrast to chronic physical health issues, it is common for mental illnesses that begin, develop and are identified early in life to result in ongoing effects persisting across a person's lifespan (Copeland, Wolke, Shanahan, & Costello, 2015). Mental health issues experienced during adolescence can profoundly affect an individual's transition to adulthood and can negatively impact their social skills and interpersonal relationships, as well as their socioeconomic position, physical health, self-esteem and engagement in risk-taking behaviours (California Adolescent Health Collaborative, 2008; Maldonado, Huang, Chen, Kasen, Cohen, & Chen, 2013).

According to Johnson, Dupuis, Piche, Clayborne and Colman (2018), people who experience depression during their adolescent years are two and a half times more likely to experience depressive disorders during adulthood. They also identified a link between adolescent depression and anxiety in adulthood, and recognised that a comorbidity of mental health issues further compounded negative outcomes for individuals and increased the complexity of their condition. In relation to suicidality, Johnson et al. (2018) recognised that previous suicide ideation and attempts are a predictive factor for a recurrence later in life. Their findings agree with those of Goldman-Mellor, Caspi, Harrington, Hogan, Nada-Raja, Poulton and Moffitt (2014), who determined that suicide attempts at a young age lead to persistent mental health problems such as depression, substance dependence and persistent suicidality in midlife.

Mental health in rural settings and barriers to accessing health services

Rural life involves distinctive occupational and lifestyle challenges, as well as unique barriers to accessing health services. Rural residents often have a strong sense of stoicism and staunchness and value independence and self-efficacy. When it comes to mental health, these attributes can contribute to an individual's resistance to engage with mental health services (Bayer New Zealand, 2018; Berry, Hogan, Owen, Rickwood, & Fragar, 2011; Clements, 2010; Gibb & Cunningham, 2018; Roy, Tremblay, Oliffe, Jbilou, & Robertson, as cited in Accident Compensation Corporation [ACC], 2014).

It has been shown that there is a level of mistrust towards mental health providers within rural settings which can prevent people from accessing these facilities (Aisbett, Boyd, Francis, Newnham, & Newnham, 2007; Brenes, Danhauer, Lyles, Hogan, & Miller, 2015). For example, Aisbett et al. (2007) identified that individuals were less inclined to engage with health services due to the concern that health professionals may not respect their confidentiality. Furthermore, mental health services within rural settings are often situated in visible public spaces, and this lack of anonymity can affect the willingness of individuals to seek help or engage in services, as some people may believe that they will be perceived negatively within their community for doing so. This perception can be heightened by the close-knit nature of rural communities, where residents often share others' personal information without their knowledge (Aisbett et al., 2007; Walker, 2012).

On a wider level, these issues are associated with the stigma often associated with mental health, on both the societal and personal levels (Aisbett et al., 2007). At the societal level, Aisbett et al. (2007) identified that within rural communities, individuals with mental illness may be perceived as a danger to the community and are best treated in mental health institutions. This stigma can impact on an individual's perception of their mental illness. Aisbett et al. (2007) also found that personal stigma can be another factor leading to reluctance to engage with mental health services.

Recent research by Whitehead, Shaver and Stephenson (2016) has identified similar links between the mental health stigma and help-seeking behaviours shown by individuals with mental illness. They identified that sufferers were less inclined to seek help due to fear of discrimination – a direct result of the stigma associated with mental health. Additionally, the prevalence of the stigma creates a further barrier for people needing to access mental health facilities, as negativie attitudes to mental illness can result in additional stress. This stress can exacerbate a person's mental health status and lead to feelings of isolation which can create further reluctance to seek attention for their condition in the rural setting (Dinos, Stevens, Serfaty, Weich, & King, 2004).

In rural communities, isolation – geographical, physical and psychological – has been linked to high levels of negative mental health and barriers to accessing help. For example, isolation has been associated with increased rates of depression, anxiety, suicidal behaviour, psychosis and personality disorders (Wang, Lloyd-Evans, Giacco, Forsyth, Nebo, Mann, & Johnson, 2017). According to Walker (2012), psychological isolation is a self-imposed phenomenon, associated with a personal culture that values being strong and self-reliant and equates asking for help with weakness. Geographical isolation presents a significant barrier for individuals seeking to access mental health services (The Royal Australian and New Zealand College of Psychiatrists, n.d.). Aisbeet et al. (2007) identified geographical isolation as the most prominent factor relating to service accessibility in rural settings, reflecting the lack of qualified mental health professionals and services available to rural residents. In Owaka, the closest mental health services are located 30.6 km distant in Balclutha, with more specialised mental health services located between 110 and 132 km away in Dunedin and Invercargill, respectively (see Figures 1 and 2). If transport is difficult to access, the possibility of accessing professional help in distant centres is limited.

Occupational and lifestyle challenges can contribute to mental health problems in rural communities. A recent New Zealand survey found that stress and anxiety are increasing in rural communities, linked to the significant and often unpredictable financial and environmental factors involving work and livelihood in country districts (Bayer New Zealand, 2018). These factors can lead to severe and long-lasting economic stress and in turn impact on the mental health of farmers and their families (The Royal Australian and New Zealand College of Psychiatrists, n.d.).

The behavioural and situational factors found in rural settings can have an especially adverse impact on the mental health of rural youth. Many young people in both rural and urban settings are beginning to experiment with substances such as recreational drugs and alcohol for the first time. However, rural youth have an increased likelihood of risk-taking behaviour with these substances (Health Promotion Agency, 2017). Moreover, there is a higher rate of youth suicide in rural settings, and rural youth are particularly susceptible to being negatively affected by friends and family members committing suicide or having poor mental health (New Zealand Herald, 2017).

Strategies for reducing mental health disparities in rural communities

High rates of suicide and barriers such as service accessibility contribute to the complexities involved in targeting mental health strategies in rural settings. To this end, joint initiatives between the Ministry of Primary Industries and the Ministry of Health have been established. The Rural Health Alliance Aotearoa New Zealand [RHANZ] (2017) has devised a framework that aims to reduce disparities and provide equitable health and social services to people living in rural communities. Among the goals of the framework are:

- Developing community resilience and a community's capacity to respond to mental health issues and mental health services
- Providing culturally purposeful peer support programmes which reflect Māori frameworks of practice
- Providing psychiatric clinical leadership
- Expanding telehealth and online-based resources to supplement face-to-face service provision (RHANZ, 2017).

Community resilience is linked to increased levels of psychological well-being for individuals; within this context, resilience is measured by how the community adapts and utilises available resources (RAND Corporation, n.d). According to Mardsen, Ambrens and Ohl (2019), community participation – for instance, collaboration and collective action – can enhance mental well-being.

From a survey of the literature, it is clear that mental health interventions which are targeted at the adolescent population can be an effective strategy for minimising the impact of mental health issues in both the short and long term (Johnson et al., 2018; Maldonado et al., 2013; Patton et al., 2014). RHANZ (2017) recognised that online and telehealth resources can provide access to mental health services when barriers such as geographical location are present, and can empower individuals to engage with them through self-management (RHANZ, 2017).

Bringing it together

Through our literature review, we have identified the issues involved in adolescent mental health, examined how the rural context impacts on this subject, and explored some frameworks appropriate to delivering health promotion messages in the rural context.

On this basis, we recognised the need for a resource to be developed that would improve mental health in adolescents in the rural setting. Such a resource would be aimed at eliminating the barriers associated with accessing mental health services. Existing frameworks and strategies were critically assessed with a view to generating ideas about what is available and where gaps exist.

Recommendations

From the literature review and through the primary and secondary research conducted on the Owaka District, we formulated the following recommendations:

1 — Improving youth mental health services in Owaka

Young people in Owaka have reduced access to mental health services, as many are not of legal age to hold a New Zealand driver's licence, and there is no public transport to take people from Owaka to Balclutha-based health services. Unlike many urban schools, Owaka's one school has no onsite counsellor. In 2019, the school has no programme targeted to mental health – which we recognise as a specific area for improvement. Thus, considering the present gaps, we recommend that mental health services specific to youth need to be improved in Owaka.

2 — Reducing barriers to mental health services

The literature identified that gossip, social stigma and isolation are key barriers for rural communities in the management of mental health problems. Owaka is not immune to these barriers; the community profile analysis indicated that this is a close-knit population where "everyone knows everything," including residents' mental health issues. Currently, Owaka lacks even basic mental health promotion, almost making it a 'taboo' subject and further decreasing the likelihood that sufferers will reach out for help.

A resource promoting the importance of accessing help would work to de-stigmatise mental health problems, improving residents' engagement in health-seeking behaviours and challenging current beliefs about mental health, thus minimising these issues for youth. The resource will also provide information where help can be found that would counter the effects of isolation in this rural location, such as phone help lines and internet sites. Such resources would eliminate the need to visit a help service in person, where people may feel stigmatised and be subject to gossip. Instead, rural clients can access services anonymously, increasing their engagement with mental health services.

3 — Promoting awareness and access to available resources

Owaka has limited mental health resources, especially information about where to access help. This has the effect of limiting residents' autonomy and opportunities to improve their mental health. The resource will provide residents with information about how to access a variety of services, taking Owaka's isolated location into consideration.

The resource

After evaluating our primary and secondary research, literature review and recommendations, we developed a collection of mental health resources. These resources foster a youth-friendly and holistic approach and aim to raise awareness of and promote engagement with mental health services for young people in the township of Owaka. In developing our resources, we initiated further contact with the Catlins Area School to ensure that our material would reach our target population. Our resources included several components: a pamphlet, caregiver leaflet, fridge magnet, and a piece in the school newsletter. Taken together, we anticipated that these materials would combine to deliver essential information and improve access to mental health services in the rural context.

Figures 3 and 4–6 illustrate some of the resources we developed.

Figure 3. Youth mental health pamphlet (front).
Source: April-Lily Sule, Claudia Unkovich-McNab, Gemma Heseltine, and Danielle Booth.

PART B: IDENTIFIED HEALTH NEED: INCREASED TOURISM IN THE OWAKA TOWNSHIP AND THE OCCUPATIONAL HEALTH RISKS FOR DEPARTMENT OF CONSERVATION (DOC) EMPLOYEES

Introduction

While conducting our research in Owaka, we identified insufficient infrastructure for tourists and the consequent health risks that this poses for the DOC employees. We noted that Owaka has limited facilities to manage the expanding tourist industry. Through our discussions with DOC employees in the region, we identified that tourists were using facilities incorrectly by defecating next to toilet facilities and smearing faecal matter along walls. This behaviour could pose a risk to the health and safety of DOC employees, who carry out the disposal of human waste. DOC employees explained that as a result of this problem, there was a need for them to receive vaccinations. Thus,

we wanted to explore further the impact of increasing tourist numbers on Owaka township, and the occupational health risks that this poses for DOC employees. We conducted a literature review of the health issues faced by DOC employees in this situation. Specifically, we focused on the impact of tourism in New Zealand, the health impacts of managing waste generated by tourism, and current government strategies and plans which seek to respond to the expanding tourism industry.

The impacts of tourists on New Zealand

Tourism in New Zealand is a growing industry, with over 3.8 million visitors entering the country each year (Weir, 2018). The tourism industry has significant impacts on the environment and health of the country. A study carried out in New Zealand of local attitudes to tourists by Lawson and Williams (2001) established that there were insufficient facilities for the numbers of visitors in some small townships, resulting in negative impacts on the environment. According to Bradley (2019), many New Zealanders believe that the expanding number of

Figure 4. Youth mental health pamphlet (back and centre).
Source: April-Lily Sule, Claudia Unkovich-McNab, Gemma Heseltine, and Danielle Booth.

tourists visiting the country is placing pressure on infrastructure, the environment and road safety (Bradley, 2019). Popular tourist destinations have reported increasing problems with human faeces and waste being deposited in inappropriate areas (New Zealand Herald, 2017).

The health impacts of exposure to faecal waste

Increasing numbers of tourists pose a challenge to DOC employees in managing the environment (New Zealand Herald, 2017). Tourists defecating around toilets is becoming a pressing issue, which may partly be the result of different cultural customs. In Owaka, DOC staff have identified a particular issue with smearing of faecal matter along walls (New Zealand Herald, 2017; personal communication, April 4, 2019).

Raw sewage and faeces contains pathogenic organisms including bacteria, viruses and fungi, to which workers are exposed through skin contact, drinking or eating contaminated products, mucous membrane contamination and, more commonly, inhalation of aerosols (Arulmozhi, Leena Hebsi Bai, Pandia Rajan, & Dheenadayalan, 2018). A study conducted in India showed that hepatitis B was frequently contracted through the transmission of body fluid such as faeces, urine and blood. It recommended that all workers who risk exposure to sewage and faecal matter be vaccinated against hepatitis B (Tiwari, 2008). The same study identified abnormal respiratory function as a result of exposure to endotoxins and airborne bacteria (bioaerosols), with ventilatory capacity being significantly decreased compared to individuals who were not exposed to sewage and faecal matter. Following such exposure, there was also a higher chance of acute symptoms such as eye irritation, dyspnea and coughing developing, and the study found that long-term exposure to occupational toxins may lead to chronic changes in lung function. Many workers also contracted dermatitis resulting from contact with substances which they are handling or exposed to (Tiwari, 2008).

Tourism management in New Zealand

A discussion by Tourism New Zealand of the 2015 tourism management plan for New Zealand highlights four approaches to managing the country's expanding tourist industry (Bowler, 2015). Two of these are applicable to Owaka – channellingchanneling tourists into areas of the country where visitor numbers have traditionally been low, such as the Catlins; and minimising the impact of tourism on the environment and communities which are especially affected (Bowler, 2015). Although such strategies are already in place, the management of tourist waste has largely been overlooked and is still a work in progress. Clutha District Council is responsible for the management of waste disposal in Owaka. At the moment, they have nominated one day a week [correct?] for roadside collection (Clutha District Council, n.d.) Although this is efficient for the present, with increasing tourist numbers visiting these areas it is likely that waste management plans will have to be developed to ensure safe and healthy environments for locals, tourists and DOC workers alike.

Recommendations

1. Increased government funding

One solution we identified that would decrease the health risks to DOC employees is to increase government funding for infrastructure in Owaka that is suitable and sustainable. This would allow for improved facilities, with a view to reducing the amount of human waste on conservation walking tracks.

2. Improving waste management resources for tourists

This option would help provide cleaner, safer environments for those using toilet facilities as well as for DOC employees who maintain them. Incorrect waste disposal can lead to an unhealthy and unsustainable environment, which in turn becomes an occupational health risk for DOC employees, tourists and the Owaka community.

3. Continued funding for vaccines

We commend DOC-funded vaccinations for its employees, a measure that has already been implemented. Owaka DOC employees are vulnerable to occupational health risks due to their exposure to bodily substances. Protecting against infections and disease, vaccinations are therefore a cost-effective health investment. From an employer perspective, it lessens the risk of short staffing, which can further increase the risks to health and safety.

Resource

A submission has been sent to Hon. Eugenie Sage, Minister of Conservation, with the aim of raising awareness about increased numbers of tourists in the Owaka township and the occupational health risks of dealing with human waste for DOC employees.

CONCLUSION

Throughout this community project, we have gathered both primary and secondary information relating to the Owaka community, enabling us to identify two key health needs of the district. The first was the lack of support for youth with respect to mental health issues. Combining this information with the findings from the literature review on youth mental health in rural areas, we developed three main recommendations for improving youth mental health services in Owaka. Next, we developed a health promotion resource which takes into consideration our target population, their whanau and the diverse ways in which people may want to seek help. Our resources – the magnet, pamphlet and caregiver information card –reflect our main health promotion message – that even in a small rural community, there are options for youth to access help if they are experiencing mental health issues. The resources we generated have been distributed to the Catlins Area School; this will ensure that our target population is reached.

Our group also identified a second health need, relating to the increase in tourism in the Owaka region and, in particular, the health risks which tourism poses to local Department of Conservation (DOC) employees. Our second literature review involved investigating the impacts of tourism, especially the health impact on DOC employees dealing with large volumes of human waste. In addition, we reviewed current tourism management strategies in New Zealand. The literature review allowed us to formulate recommendations that aim at improving DOC facilities, including providing educational resources about the correct disposal of waste and a continuing vaccination programme, goals to be achieved through additional funding. To express these concerns and to progress our aim of improving the health of DOC workers through better management of tourists, we wrote a submission that was forwarded to Hon. Eugenie Sage, Minister of Conservation.

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REFERENCES

Accident Compensation Corporation. (2014). *Farmers' mental health: A review of the literature*. Retrieved from https://www.mentalhealth../org.nz/assets/ResourceFinder/wpc134609.pdf

Aisbett, D., Boyd, C., Francis, K., Newnham, K., & Newnham, K. (2007). Understanding barriers to mental health service utilization for adolescents in rural Australia. *Rural and Remote Healt , 7*(1), 1-10. Retrieved from www.rrh.org.au/journal/article/624

Anderson, E. T., & McFarlane, J. (1996). *Community as partner: Theory and practice in nursing* (2nd ed.).sPhiladelphia, PA: Lippincott, Williams & Wilkins.

Arulmozhi, P., Leena Hebsi Bai, L., Pandia Rajan, A., & Dheenadayalan, Z. (2018). A study of the occupational health status of sewage workers at Panjapur in Thrichy district. *World Journal of Pharmaceutical Research, 7*(6), 842 849. https://doi.org 10.20959/wjpr20186 11450

Bayer New Zealand. (2018). *State of the rural nation survey finds rural dwellers less likely to talk to health professionals*. Retrieved from https://www.bayer.co.nz/readnews.php?id=NZ+Rural+Mental+Health+Survey

Berry, H., Hogan, A., Owen, J., Rickwood, D., & Fragar, L. (2011). Climate change and farmers' mental health: risks and responses. *Asia Pacific Journal of Public Health, 23*(2), 119-132. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/21447547

Bowle , K, (2015). *Tourism New Zealand. Managing visitor demands*. Retrieved from https://www.tourismnewzealand.com/news/managing-visitor-demand/

Brenes, G., Danhauer, S., Lyles, M., Hogan, P., & Miller, M. (2015). Barriers to mental health treatment in rural older adults. *American Journal of Geriatric Psychiatry, 23*(11), 1172-1178. https://doi.org 10.1016/j.jagp.2015.06.002

California Adolescent Health Collaborative. (2008). *Mental health in adolescence: A critical time for prevention and early intervention*. Retrieved from http://www.phi.org/uploads/application/files/dy2eosgs9ughghlbag1vwdo13jfu16436hey3l9s1szaavqr42.pdf

Catlins Coast Incorporated. (2019a). Iwi. Retrieved from https://www.catlins.org.nz/about-the-catlins/iwi/

Catlins Coast Incorporated. (2019b). The economy. Retrieved from https://www.catlins.org.nz/about-the-catlins/economy/

Clements, J. (2010). Mental Health Foundation introduction. Retrieved from https://www.mentalhealth.org.nz/assets/Uploads/down-on-the-farm-in-the-rural-south.pdf

Copeland, W., Wolke, D., Shanahan, L., & Costello, J. (2015). Adult functional outcomes of common childhood psychiatric problems: A prospective, longitudinal study. *JAMA Psychiatry, 72*(9), 892–899. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4706225

Department of Conservation. (2003a). *The Catlins Coast*. Retrieved from https://www.doc.govt.nz/globalassets/documents/getting-involved/students-and-teachers/field-trips-by-region/001-the-catlins-coast.pdf

Deverson, C. (2016, September 27). Hemp tipped to regenerate rural economies. *Stuff*. Retrieved from https://www.stuff.co.nz/business/farming/cropping/84649600/hemp-tipped-to-help-regenerate-rural-economies

Dinos, S., Stevens, S., Serfaty, M., Weich, S., & King, M. (2004). Stigma: the feelings and experiences of 46 people with mental illness. *British Journal of Psychiatry, 184*(2), 176-181. Retrieved from https://www.cambridge.org/core/services/aop-cambridge-core/content/view/920C7C5C3CC746B6C0562F7EC315C238/S0007125000229401a.pdfstigma_the_feelings_and_experiences_of_46_people_with_mental_illness.pdf

Distance from to. (2012). *Distance calculator New Zealand*. Retrieved from http://nz.distancefromto.org

Evans, S. (2014). *Catlins River track* [Image]. Retrieved from https://tikitouringnz.blogspot.com/2014/02/catlins-river-nz-falcon.html

Gattey, M. (2017, November 18). Rising depression and anxiety among kiwi youths. *Stuff*. Retrieved from https://www.stuff.co.nz/national/health/99014681/rising-depression-and-anxiety-among-kiwi-youths

Gibb, S., & Cunningham, R. (2018). *Mental health and addiction in Aotearoa New Zealand*. Retrieved from https://mentalhealth.inquiry.govt.nz/assets/Summary-reports/Otago-mental-health.pdf

Goldman-Mellor, S., Caspi, A., Harrington, H., Hogan, S., Nada-Raja, S., Poulton, R., & Moffitt, T. (2014). Suicide attempt in young people: A signal for long-term health care and social needs. *JAMA Psychiatry, 71*(2), 119-127. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/24306041

Google. (n.d.). *Owaka region* [Image]. Retrieved from https://www.google.com/maps/place/Owaka/@-46.367676,169.4664328,10.38z/data=!4m5!3m4! 1s0xa82db1c3f5b59009:0x500ef8684799c90!8m2!3d-46.4513413!4d169.6580887

Google. (n.d.). *Owaka, New Zealand* [Image]. Retrieved from https://www.google.com/ place/Owaka/@-40.2863233,168.3418014,5.31z/data=!4m5!3m4! 1s0xa82db1c3f5b59009:0x500ef8684799c90!8m2!3d-46.4513029!4d169.6582516

Gore, F., Bloem, P., Patton, G., Ferguson, J., Joseph, V., Coffey, C., Sawyer, S., & Mathers, C. (2011). Global burden of disease in young people aged 10–24 years: A systematic analysis. *Lancet, 18*(377), 2093–2102. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/21652063

Health Promotion Agency. (2017). *Key results: Young people aged 15-24 years. Attitudes and behaviour towards alcohol survey 2013/14 to 2015/16*. Wellington, New Zealand: Author

Johnson, D., Dupuis, G., Piche, J., Clayborne, Z., & Colman, I. (2018). Adult mental health outcomes of adolescent depression: A systematic review. *Depression and Anxiety, 35*(8), 1–17. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/29878410

Lawson, R., & Williams, J. (2001). Community issues and resident opinions of tourism. *Annals of Tourism Research, 28*(2), 269–290. https://doi.org/10.1016/S0160-7383(00)00030-X

Madsen, W., Ambrens, M., & Ohl, M. (2019). Enhancing resilience in community-dwelling older adults: A rapid review of the evidence and implications for public health practitioners. *Frontiers in Public Health, 7*(14), 1–15. https://doi.org/10.3389/fpubh.2019.00014

Maldonado, L., Huang, Y., Chen, R., Kasen, S., Cohen, P., & Chen, H. (2013). Impact of early adolescent anxiety disorders on self-esteem development from adolescence to young adulthood. *Journal of Adolescent Health, 53*(2), 287–292. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3725205/

Mental Health Foundation. (2014). *Are our kiwi kids all right?* Retrieved from https://www.mentalhealth.org.nz/home/news/article/24/are-our-kiwi-kids-all-right

New Zealand Herald. (2017, September 29). Human waste, toilet paper 'all over the place' as tourists turn Milford Track into outdoor toilet. *New Zealand Herald*. Retrieved from https://www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=11927908

Patton, G., Coffey, C., Romaniuk, H., Mackinnon, A., Carlin, J., Degenhardt, L., Olsson, C., & Moran, P. (2014). The prognosis of common mental disorders in adolescents: A 14-year prospective cohort study. *The Lancet, 383*(9926), 1401–1411. Retrieved from https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(13)62116-9/fulltext

RAND Corporation. (n.d). *Community resilience*. Retrieved from https://www.rand.org/topics/community-resilience.html

Rural Health Alliance Aotearoa New Zealand [RHANZ]. (2017). *Mentally healthy rural communities*. Retrieved from http://www.rhaanz.org.nz/wp-content/uploads/2017/04/Final-RHAANZ-MHA- Framework-March-2017.pdf

Statistics New Zealand. (2013). 2013 census quickstats about a place: Owaka. Retrieved from http://archive.stats.govt.nz/Census/2013-census/profile-and-summary-reports/quickstats-about-a-place.aspx?request_value=15104&parent_id=15096&tabname=&p=y&printall=true

The Royal Australian and New Zealand College of Psychiatrists. (n.d.). *Mental health in rural areas*. Retrieved from https://www.ranzcp.org/publications/rural-psychiatry/mental-health-in-rural-areas

Tiwari, R. R. (2008). Occupational health hazards in sewage and sanitary workers. *Indian Journal of Occupational and Environmental Medicine, 12*(3), 112–115. https://doi.org/10.4103/0019-5278.44691

Venture Southland. (2019). Owaka. Retrieved from https://southlandnz.com/the-catlins/owaka

Walker, J. (2012). *Mental health in the rural sector*. Retrieved from https://www.mentalhealth.org.nz/assets/ResourceFinder/Mental-health-in-the-rural-sector-a-review-2012.pdf

Wang, J., Lloyd-Evans, B., Giacco, D., Forsyth, R., Nebo, C., Mann, F., & Johnson, S. (2017). Social isolation in mental health: A conceptual and methodological review. *Social Psychiatry and Psychiatric Epidemiology, 52*(12), 1451–1461. https://doi.org/10.1007/s00127-017-1446-1

Weir, J. (2018, April 27). *Annual visitor arrivals up more than 1.2 million in 5 years* [Press release]. Retrieved from https://www.stats.govt.nz/news/annual-visitor-arrivals-up-more-than-1-2-million-in-five-years

Whitehead, J., Shaver, J., & Stephenson, R. (2016). Outness, stigma, and primary health care utilization among rural LGBT populations. *PLOS One*, 11(1), 1–17. https://doi.org/ 10.1371/journal.pone.0146139

World Health Organization. (2019). *Primary health care*. Retrieved from https://www.who.int/news-room/fact-sheets/detail/primary-health-care