
Considering malocclusion as a disability

Keely Blanch,^{*†} Joe Antoun,^{*} Lee Smith,^{*} Hannah Jack,^{*} Peter Fowler^{*} and Lyndie Foster Page[†]

Department of Oral Sciences, School of Dentistry, University of Otago, Dunedin,^{*} College of Education, University of Otago, Dunedin[†] and New Zealand Defence Force, Wellington,[†] New Zealand

Background: Numerous studies have indicated that a malocclusion possibly affects young people's well-being and oral health-related quality of life (OHRQoL). Dento-facial aesthetics may influence how people are judged and may elicit social consequences such as bullying and negative comments. The present study aimed to explore the impact of a malocclusion on young New Zealanders who sought subsidised treatment from the Wish for a Smile (WFAS) organisation and to determine their motivation for seeking care.

Method: A qualitative thematic analysis of 151 application letters to WFAS from young people (aged 11–18 years) and their caregivers was supplemented by telephone interviews of nine successful and nine unsuccessful applicants to explore their experiences through their own words.

Results: In both the letters and the interviews, young people most commonly reported psychological impacts, followed by social and emotional effects associated with their malocclusion. Physical impacts were less commonly reported. In their application letters, caregivers, although at lower frequencies, reported that the young people experienced the same impacts. One caregiver referred to the young person's malocclusion as a temporary disability.

Conclusion: For some young people, a malocclusion may lead to social consequences that are disabling. When considering funding options, it is important to note the individual experience and the impact that a malocclusion might have upon the young person's well-being.

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Keely Blanch: keelyblanch.work@gmail.com; Joe Antoun: joseph.antoun@otago.ac.nz; Lee Smith: leighsmith32@hotmail.com; Hannah Jack: hcjack@gmail.com; Peter Fowler: peter@iortho.co.nz; Lyndie Foster Page: Lyndie.FosterPage@nzdf.mil.nz

Introduction

The present study aimed to explore the impact that living with an untreated malocclusion might have on low income adolescent New Zealanders and determine their motivations for seeking subsidised treatment from a local charitable organisation, Wish for a Smile (WFAS). Furthermore, the study aimed to explore the implications for the health and well-being of young people living with a malocclusion of a lack of public funding for orthodontic treatment.

An untreated malocclusion may have ongoing effects on young people, although the literature is conflicting as to whether a malocclusion affects quality of life in the long-term.¹ Multiple studies have indicated that the physical, psychological and social effects of

a malocclusion can impact upon emotional health and social well-being and lead to poorer oral health-related quality of life (OHRQoL).²⁻⁷ For instance, young people with an untreated malocclusion may feel self-conscious and ashamed of their teeth, suffer from lower self-esteem, and be upset by bullying and negative comments about their non-conforming dental aesthetics.^{1,8,9} In response, many young people adopt coping strategies such as hiding their mouth and teeth.¹⁰ People with a severe malocclusion are more likely to feel that the malocclusion affects their quality of life.^{6,11-13}

In contrast, research has also suggested that some people are seemingly unconcerned by their dento-facial appearance¹⁴ and that a malocclusion appears to be unrelated to long-term occupational status.¹⁵

Nevertheless, recent investigations have shown that dento-facial aesthetics may be inaccurately judged as indicating personal qualities, including capability, intelligence, and employability, which may have long-term consequences for individuals living with a malocclusion.^{16,17}

Medical fields have long held that disability is considered as a physical (or mental) illness or impairment that affects daily activities.¹⁸ In addition, sociological approaches recognise that disability includes the ways in which society reacts to impairments and imposes restrictions upon or ‘disables’ those who are deemed different from the ‘norm’.¹⁹ Thomas describes a disability as involving both aspects. That is, a disability arises from both restrictions on activities due to an impairment, as well as experiences of social consequences that serve to undermine an individual’s psycho-emotional well-being.¹⁹ Accepting Thomas’ description of a disability, a malocclusion might be viewed as an impairment that has consequences, or impacts, for some people. Furthermore, impairment effects, and societal responses to a malocclusion, may restrict an individual’s activities, causing barriers to ‘doing’, and further undermine psycho-emotional well-being, causing barriers to ‘being’.¹⁹

A brief literature search was conducted but found no recent studies that discussed a malocclusion as an impairment or disability, although it could be argued that much of the literature that considers the impact of a malocclusion discusses ‘impairment effects’. Given the potential for long-term consequences, the hypothesis that a malocclusion may be a disabling condition for some people was considered.

Materials and methods

A qualitative research approach may be used to elicit rich insights into life experiences²⁰ and allow the exploration of the thoughts and emotions of participants through their own words. The present two-phase qualitative study used data derived from applications to the ‘Wish for a Smile’ (WFAS) program (see Figure 1). WFAS is a charitable health initiative of the New Zealand Association of Orthodontists in which the majority of its members volunteer their time and provide heavily subsidised specialist orthodontic care to young people from low socioeconomic backgrounds who present with severe malocclusions. The participants were young New Zealand citizens or permanent residents, aged 11–18

years, who had applied to the WFAS in the period from 2012–2015. As part of the application process, the young people and their caregivers were required to write letters outlining their motivation for treatment and why they require subsidised care.

In a first phase, all 151 successful applications to WFAS from 2012–2015 were analysed using an iterative and inductive thematic analysis. Some letters were missing from applications and letters varied in length. Caregiver letters (N = 143) and letters from young people (N = 149) were analysed by one author (KB) using HyperResearch (analytical software), and cross checked by additional authors (JA and LFP) to ensure coding reliability.²¹ In phase 2, telephone interviews were conducted with a sub-sample of nine successful and a further nine unsuccessful WFAS applicants. The written transcripts were analysed in HyperResearch using the themes identified in phase 1, with new themes and codes added as required. The initial analysis of the interviews was sent to participants to check interpretations.²² No changes were requested by participants. Both phases underwent review by the University of Otago Ethics Committees (reference HD16/067 and 17/016).

The following results provide representative quotes from the interviews. All names used are pseudonyms. It should be noted that the percentages in the provided tables are included only to indicate the predominance of the impacts reported by participants and do not indicate a statistical analysis.

Results

Despite being unsuccessful in their application to WFAS, four participants had since arranged alternative treatment options (see Table I).

For both letters and interviews, the most commonly reported consequences of a malocclusion were psychological, followed by social and emotional

Table I. Interview participant treatment status.

Interview participants	Number interviewed	Treatment (/T)	No treatment (/U)
Successful applicants (S/)	9	9 (S/T)	-
Unsuccessful applicants (U/)	9	4 (U/T)	5 (U/U)
TOTAL interviewed	18	13	5

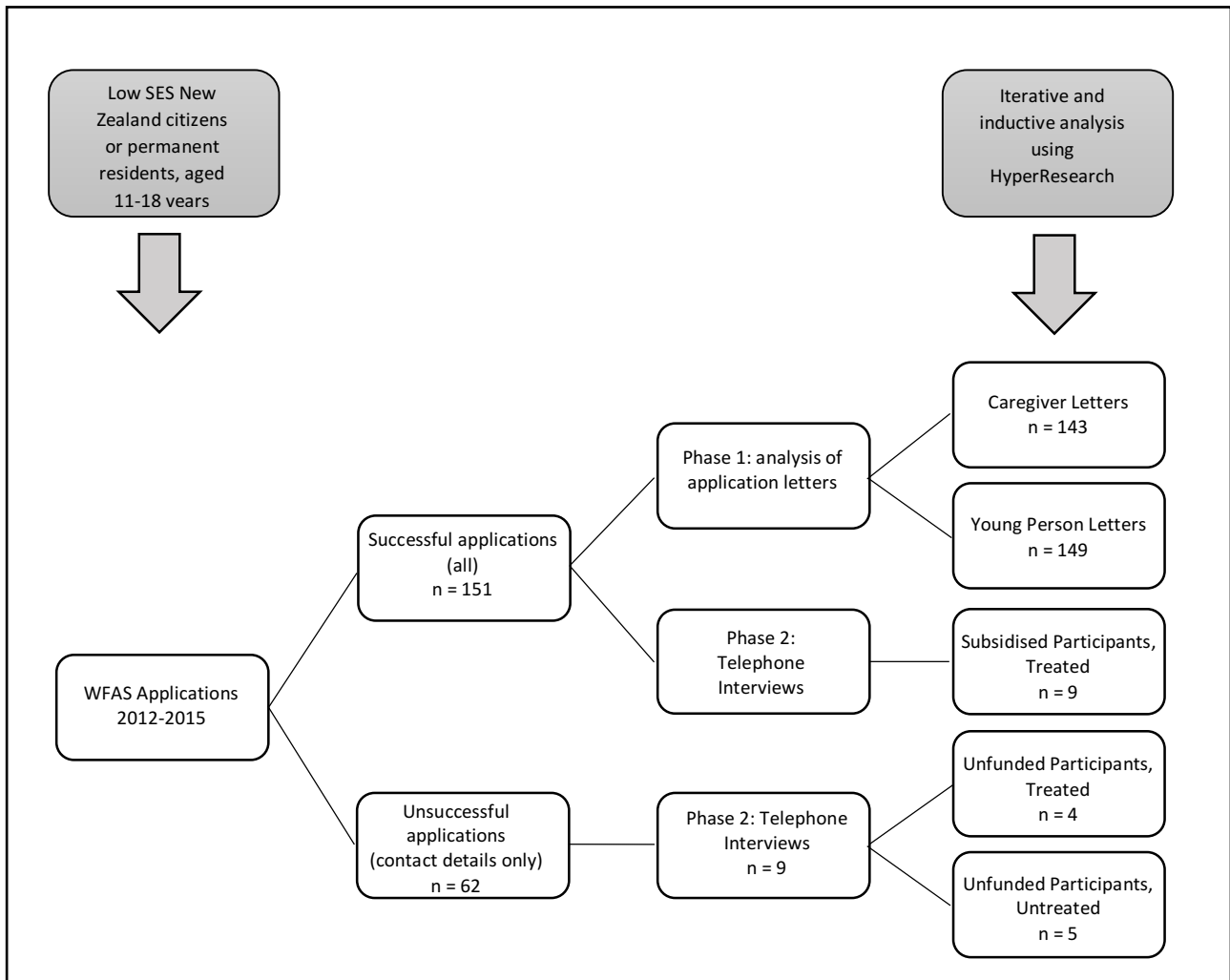


Figure 1. Data source and methods.

effects. Physical impacts were the least frequently mentioned.

Table II shows the prevalence of the impacts of a malocclusion reported to affect the young people applying for subsidised care from WFAS.

Despite the multiple consequences, a malocclusion was only referred to as a disability by one caregiver (identified as CL236). No other caregivers or young people directly referred to a malocclusion as a disability in their letters or interviews.

[CL236]: Your assistance would be a godsend for [young person] to rise above this temporary disability.

Participants spoke of their malocclusion as a physical issue that affected activities such as eating:

Marc (U/U): Out of the blue, I'll go to bite down and it'll grab my lip. Like, 'cause I've got a tooth that's poking out quite bad ... It isn't a nice feeling.

Amy (U/T): I couldn't bite properly with my front teeth. I'd have to use my side teeth because they don't fit together properly.

Many participants spoke of wanting their teeth 'fixed', or wanting to have their teeth conform to dental and social norms of 'straight', 'ordered', or 'perfect'.

Jayden (U/U): When people ... say stuff, judge or some are just staring. I think about why do I have these teeth and if they could ever be fixed.

Craig (S): I wanted better teeth ... They just weren't... normal, I guess ... They had a funny look ... They were crooked and stuff.

Table II. Impacts of malocclusion that affected young people.

Primary category	Secondary category	Interview participants, treated		Interview participants, untreated		Young person, application letters (N = 149)		Caregivers, application letters (N = 143)	
		N	(%)	N	(%)	N	(%)	N	(%)
Psychological	Decreased self-confidence and esteem	12	(92.3)	5	(100)	91	(61.1)	83	(58.0)
	Believing teeth need to be 'fixed'	7	(53.8)	2	(40.0)	66	(44.3)	38	(26.6)
	High expectations treatment will be life-changing	2	(15.4)	-		75	(50.3)	43	(30.1)
	Comparing self to others	8	(61.5)	4	(80.0)	16	(10.7)	1	(0.7)
	Feeling of missing opportunities	3	(23.1)	1	(20.0)	3	(2.0)	1	(0.7)
	Fear for future careers and potential	4	(30.8)	2	(40.0)	29	(19.5)	15	(10.5)
	Constantly aware of teeth	4	(30.8)	1	(20.0)	4	(2.7)	1	(0.7)
	Concern over how affects the caregivers	4	(30.8)	3	(60.0)	16	(10.7)	-	
At least one secondary category		13	(100)	5	(100)	135	(90.6)	111	(77.6)
Emotional	Focus on aesthetics	13	(100)	5	(100)	72	(48.3)	21	(14.7)
	Desire to be 'normal' teen	2	(15.4)	-		9	(6.0)	5	(3.5)
	Desire to have teeth ordered and fit dental 'norms'	5	(38.5)	3	(60.0)	40	(26.8)	8	(5.6)
	Dislike for teeth	8	(61.5)	3	(60.0)	41	(27.5)	6	(4.2)
	Ashamed of teeth	2	(15.4)	3	(60.0)	8	(5.4)	2	(1.4)
	Being upset, sad, crying about teeth	8	(61.5)	3	(60.0)	28	(18.8)	14	(9.8)
	Psycho-emotional distress (severe)	2	(15.4)	3	(60.0)	20	(13.4)	8	(5.6)
	Long-desired treatment	6	(46.2)	4	(80.0)	10	(6.7)	5	(3.5)
	Desperate to be treated	3	(23.1)	-		26	(17.4)	4	(2.8)
At least one secondary category		13	(100)	5	(100)	114	(76.5)	70	(49.0)
Social	Bullying and negative comments pre-treatment	12	(92.3)	5	(100)	79	(53.0)	34	(23.8)
	Self-consciousness and embarrassment	13	(100)	5	(100)	78	(52.3)	54	(37.8)
	Impact on social interactions	12	(92.3)	5	(100)	31	(20.8)	18	(12.6)
	Socially isolated, friendless	3	(23.1)	1	(20.0)	14	(9.4)	15	(10.5)
	Affecting engagement and achievement (at school, sports, or employment)	11	(84.6)	3	(60.0)	18	(12.1)	9	(6.3)
	Desire for romantic relationships	3	(23.1)	-		3	(2.0)	1	(0.7)
At least one secondary category		13	(100)	5	(100)	121	(81.2)	82	(57.3)
Physical	Eating issues	7	(53.8)	4	(80.0)	34	(22.8)	21	(14.7)
	Discomfort or pain	3	(23.1)	5	(100)	21	(14.1)	10	(7.0)
	Difficulty with oral hygiene	7	(53.8)	4	(80.0)	18	(12.1)	6	(4.2)
	Speech issues	1	(7.7)	-		14	(9.4)	11	(7.7)
	Difficulty closing mouth	4	(30.8)	-		9	(6.0)	-	
	Mouth cuts, sores, ulcers	-		-		11	(7.4)	7	(4.9)
	Biting lip/cheek/tongue	-		1	(20.0)	9	(6.0)	3	(2.1)
	Needing surgery or multiple extractions	2	(15.4)	2	(40.0)	3	(2.0)	1	(0.7)
	Dribbling, drooling	-		1	(20.0)	4	(2.7)	2	(1.4)
	Breathing issues	2	(15.4)	-		3	(2.0)	1	(0.7)
	Trouble with mouth guards	-		-		3	(2.0)	2	(1.4)
At least one secondary category		11	(84.6)	5	(100)	73	(49.0)	38	(26.6)
Coping strategies	Dislike/avoidance of photos	3	(23.1)	3	(60.0)	11	(7.4)	3	(2.1)
	Adapting eating	4	(30.8)	3	(60.0)	-		-	
	Avoiding social situations	3	(23.1)	-		8	(5.4)	3	(2.1)
	Hiding teeth	9	(69.2)	5	(100)	74	(49.7)	52	(36.4)
	Naming their condition (e.g. vampire teeth)	4	(30.8)	1	(20.0)	27	(18.1)	8	(5.6)
	Brushing more frequently	2	(15.4)	-		3	(2.0)	-	
At least one secondary category		10	(76.9)	5	(100)	86	(57.7)	55	(38.5)

Laura (U/U): I think, it's one of the first things people notice, and when you're talking, and like, smiling for example, like, yeah. It matters a great deal ... because it's always portrayed that celebrities and people on TV have perfect teeth and perfect smiles.

Participants also described being bullied by peers and receiving negative comments about their teeth from peers, family, and strangers. Negative comments affected their social interactions and their ability to engage with others. The participants worried that their malocclusion may prevent them achieving their potential or pursuing a career.

Ella (S): When I had my crooked teeth, I was quite reserved, I didn't really want to talk to anyone ... That sort of slowed down my growth, like, how I grew up.

Marc (U/U): I've walked into a few businesses' places just to look for a job ... and you see the reception lady and I smile at her and then she looks like she's scared.

Max (U/T): Sometimes when I meet a stranger, sometimes they might make a comment [then] I basically try and explain that my teeth, I was born with my teeth like that.

Many had developed strategies such as hiding their teeth to minimise the impacts of their malocclusion.

Laura (U/U): I try to hide my teeth as much as possible.

Some interview participants disclosed that they felt friendless, rejected, or isolated.

Megan (S): Other people didn't really, like, like hanging out with me or being around me so, I'd kind of have everything to myself, and keep to myself and... closed myself in, I guess.

Participants who had been unsuccessful in their application to WFAS, and who remained untreated, continued to feel ashamed of their teeth and their inability to seek treatment. They felt their teeth marked them as different from their peers and family.

Sara (U/U): It's kind of like degrading in a way, I guess. Like, some people have crooked teeth and they don't care, but like... pretty much like

everyone in my family has like nice teeth or has like, gotten braces so I've kind of just like, felt like a bit of an outsider I guess.

Marc (U/U): I feel quite disgusted with my teeth ... Just the way that they look, you know? The way they look ain't everything, but when you're getting people, like... I don't know, I feel disgusted in myself due to my teeth.

Participants also revealed that their malocclusion had caused them psycho-emotional distress and continued to have an impact, even for some who had subsequently received treatment.

Marc (U/U): Sometimes I'd kind of do, oh it just about drove me to being self-harmed ... It still affects me today, like, you still get people looking at you like, strange. It sucks, but at the end of the day I can't do nothing about it unless I get that treatment.

Megan (S): [bullying] has still affected me till now, because now I'm still real insecure about myself with all of what people used to say, and now I'm just always worried, you know, what if something's wrong with my face.

Discussion

The findings from the present qualitative study support wider research showing that a malocclusion has physical, social and psycho-emotional effects on young people.²⁻⁷ The participants in this study were motivated to seek treatment because their malocclusion affected their lives in multiple ways. For those young people who were unsuccessful in their applications to WFAS, and subsequently remained untreated, the impact of their malocclusion was ongoing. Nonetheless, studies exploring the impacts of a malocclusion did not appear to discuss malocclusion overtly in terms of disability issues.

The present study suggests that moving beyond a medicalised understanding of disability as physical suffering and disadvantage should be considered.¹⁸ To embrace a social relational model of disability, it is suggested that a malocclusion is an impairment that is potentially disabling because of societal norms of idealised dental aesthetics, and the social consequences imposed on those people whose dento-facial aesthetics do not meet the perceived 'ideal'.

Ideal dental aesthetics are a result of clinical dental norms that are reinforced by evolving social concepts portrayed in the media.²³ Many of the participants echoed dental and social norms when they spoke of needing their teeth 'fixed', or of wanting their teeth to be 'straight', 'ordered' or 'perfect'. Similarly, many participants believed that dental technologies could 'fix' their dentition. Fixed appliances were categorised in the same way as eyeglasses, as a medical technology used to minimise the impact of an impairment.²⁴ For some participants, a malocclusion did indeed affect some activities such as eating, as well as causing impairment effects such as pain and jaw issues. However, these young people also experienced numerous 'social consequences' and psycho-emotional impacts in relation to their malocclusion.

Impairments become disabilities when there are social consequences that cause disadvantage and harm well-being.^{18,19} From a medical perspective, impairments are issues to be healed, treated, or fixed.^{19,24} However, research has shown that the clinical need for treatment does not always indicate the impact that a malocclusion will have upon a patient's quality of life.⁶ It is the social consequences imposed upon a person with an impairment that are disabling.¹⁸

Being disabled is a personal experience within a social context.²⁴ People living with a malocclusion may consider their dental state as a disability if they face social barriers, while others may experience few consequences within their social context. The results of the present study support previous research that showed that a malocclusion and corresponding dento-facial appearance affect sociability and may have an effect on employment opportunities.^{16,17} The young people currently assessed reported facing social barriers and restrictions because of the way others in their social context reacted to their dental appearance. They described feeling stigmatised by the way others reacted to their malocclusion, including in employment situations. Many of the participants compared themselves to their peers, family members and media examples and felt inferior. Their psycho-emotional well-being was affected, and they had become self-conscious and lost self-confidence. The young people who were interviewed felt their dento-facial appearance marked them as different while some spoke of being the only member in their family who had crooked teeth. In this situation, it was likely that their sense of difference and isolation was reinforced

and therefore affected their psycho-emotional well-being.²⁴ For several of these young people, the impact of their malocclusion raised barriers against their ability to engage and participate fully in society. Nonetheless, only one caregiver referred to a malocclusion directly as a disability, and no young person considered this relationship. This may be due to the perceived stigma of being 'disabled' or because a malocclusion is not usually classified as a disabling condition. It is suggested that, within Thomas'¹⁹ framework of social relational disability, the social consequences and barriers faced by some people living with an untreated malocclusion mean that the malocclusion can be understood as potentially disabling.

Social and political recognition of a malocclusion as a potentially disabling condition, rather than a cosmetic issue, may increase recognition of the broader psycho-emotional and social impacts of a malocclusion. In a recent meta-analysis that assessed the impact of orthodontic treatment, Javidi et al. concluded that there is some evidence 'that orthodontic treatment during childhood or adolescence leads to moderate improvements in OHRQoL'.⁵ Currently in New Zealand, only those with the most severe malocclusion and cranio-facial abnormality have access to publicly funded treatment. Recognising a malocclusion as potentially disabling offers the potential to influence funding options for young people seeking treatment.

WFAS applicants, due to the application process, by default present with severe malocclusions. This may have affected the reporting of physical impacts in the present study. However, the results show that many young people experience impairment consequences, and the majority experience psycho-emotional and social impacts. These findings highlight the need to consider funding treatment for a broader spectrum of malocclusion to take into account physical and psycho-emotional impacts and the effects upon well-being.

The present study has several limitations. Participants were recruited from a pool of self-selected WFAS applicants. Although orthodontic treatment in New Zealand is undertaken by general dentists and specialist orthodontists, the WFAS sample sought subsidised specialist orthodontic treatment due, in part, to the complexity of their malocclusions. Therefore, the WFAS sample may not be totally representative of the population who seek orthodontic treatment, including those who undertake treatment for moderate and

minor malocclusions. Furthermore, only a small sub-sample of the applicants were interviewed. Nonetheless, qualitative results from small samples can give rise to 'logical generalisations' that offer insights into larger groups.²⁶ Another limitation is that participants were not specifically asked their views of a malocclusion as a disabling condition. Future research may wish to explore whether young people and their caregivers perceive a malocclusion as a potentially disabling impairment. Future research may also wish to examine the different social norms of different contexts to explore whether this changes people's perceptions of the impacts of a malocclusion. It is suggested that there is scope to conduct a similar research project with a larger sample of participants, which would lend itself to statistical analysis.

Conclusion

- A malocclusion has physical, social and psycho-emotional impacts.
- A malocclusion may restrict some daily activities and damage a young person's self-concept and psycho-emotional well-being.
- The individual experience is important. For some people, an untreated malocclusion could be considered as an impairment with disabling social consequences.
- If a malocclusion is recognised as potentially disabling, treatment and funding options need to consider the individual experience and the impact of a malocclusion upon well-being.

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Corresponding author

Antoun, J. (BDS, DCLinDent(Orth))
Department of Oral Sciences, School of Dentistry /

University of Otago College of Education
University of Otago
PO Box 56
Dunedin, 9054
Email: joseph.antoun@otago.ac.nz

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